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CONTENTS

New Works on British Railways

DETAILS of three major improvement schemes now authorised by the British Transport Commission bear out the policy of concentrating on basic measures necessary for efficient operation which has often been stated by Mr. John Elliot, Chairman of the Railway Executive. The widening at Potters Bar, of which, with the other works, particulars are given elsewhere, will remove a bottleneck that has long been troublesome. In undertaking it now, the Railway Executive is looking ahead to the results of planned development in Hertfordshire as far out as Royston, as well as considering the inner suburban zone. The motive power depot projects at Crewe and Thornaby will both facilitate examination and maintenance, thus contributing to efficient use of locomotive power. Provision of a diesel-electric maintenance shop at Thornaby is a measure likely to be necessary on a wider scale as the standard new shunters go into service and existing locomotives move out to work that may be at a considerable distance from the depots where hitherto they have been maintained and fuelled. The Crewe North scheme involves new buildings south of the station to undertake day-to-day examinations and repair and so relieve the existing North shed, where new coaling, ash-lifting, and other equipment have been installed already. The total cost of the three schemes is nearly £4 million. Shortly before these projects were announced the Minister of Transport had given details in the House of Commons of other works already in progress or authorised on British Railways, all of which are estimated to cost over £100,000 individually. Their combined total is £42,085,000. The largest items shown are the Manchester - Sheffield - Wath electrification (£10,983,000) and the Southern Region London suburban area change-of-frequency scheme (£16,572,000).

Matching Steel Plate Production to Demand

RETENTION of a voluntary scheme for distribution of steel plate after the ending of general steel rationing does not reflect a decline in plate production. The current issue of the *Monthly Statistical Bulletin* published by the British Iron & Steel Federation shows that the reason is the changed pattern of demand, particularly from the shipbuilding industry. Tankers, which take a higher proportion of their steel requirements in the form of plates than do dry cargo vessels, formed 50 per cent of the output from British shipyards in 1952 and account for 56 per cent of the orders at present on the shipbuilders' books. Furthermore, new constructional techniques have increased the demand for plate relatively to heavy sections for all types of vessels. Such changes, coinciding with the heavy railway requirements for renewal of rolling stock, impose a distribution problem of which the best that can be said is that recognition of its nature has helped the industry in taking steps for its solution at as early a date as possible, by making maximum use of existing capacity and planning for expansion. The steel plate output for the current year is estimated at over 2·4 million tons, against 2·26 million tons last year, these figures comparing with an average of 1·5 million tons in the years 1937-38.

Loan for C.I.E. Development

CORAS IOMPAIR EIREANN is to make an issue of £2,500,000 five per cent Transport Stock at a price of £99 per £100 of stock. This is to finance a large-scale capital development programme which covers the acquisition of diesel-electric locomotives and railcars, new coaches and wagons, plant and machinery, new workshops, and improvements to buildings. The announcement of the loan is in line with the recent submission to the Minister for Industry & Commerce that with an almost complete changeover to diesel working and a long-term scheme for capital re-equipment the undertaking would be able to carry on without "undue loss." It is estimated that to change entirely to diesel traction would cost C.I.E. about £3,000,000 over a period of years but that this expenditure would be recouped in lower working costs in about five years. The total deficiency on working last year was £2,000,000, and the Government granted a subsidy to that amount. The maximum subsidy for 1953-54 has been fixed by the Government at £1,500,000. The five per cent stock is redeemable in 1972-77. There are £9,889,083 of C.I.E. three per cent Transport Stock 1955-60 and £3,514,460 of three per cent Transport Stock 1975-85 already outstanding.

Road Haulage Association Annual Dinner

SPEAKING at the annual luncheon of the Road Haulage Association on Tuesday last, which was presided over by Mr. Bernard Winterbottom, National Chairman, Mr. Lennox-Boyd, Minister of Transport, said that he hoped to announce the names of the Disposals Board later this week. He had had many talks both with the officers and members of the Road Haulage Association during the last year, and he could say that after every talk they had left these meetings with mutual respect; he personally had learned much from them. He thanked Mr. Bernard

Winterbottom and the officers of the Road Haulage Association for their assistance, which all had so willingly given. The Government had done its best to fashion a Bill which would give greater opportunity to rail and road transport, and would lift the burden of road operation from the railways, and at the same time he hoped all would use the immense opportunity with good wisdom and good sense. Under great difficulty the Road Haulage Association had maintained its reputation, and it would, he felt sure, refute the unjust charge that private and public enterprise could not go hand-in-hand.

Higher Fares in France

THE French National Railways raised main line passenger fares by 25 per cent on May 15. As an example, the second class rate, formerly fr.6·25 a kilometre, has now become fr.7·8. The increase applies also to the supplements which are payable for travel by certain high-speed trains and for *couchettes*. Suburban fares are not affected and the increase is deferred until October 1 for the special holiday fares to which French people enjoying paid holidays are entitled. The first class fare is now 17½ times and the third class fare 20 times higher than before the war though working expenses have increased by 27 times. The increases are expected to bring in some fr.20,000 million in the second half of this year. The object has been to reduce the deficit of the railways and hence the contribution by the State; the taxpayer will thus pay less but the railway user more. The tourist traffic is not expected to suffer as it is stated that French fares are still below those of neighbouring countries, except Spain, and the increases do not, of course, apply to tickets which were bought before May 15.

Brazilian Railways in 1952

INTENSIFIED road competition has had its effect on the car loadings of four out of five Brazilian railways taken as the subject for a study of general trends undertaken by the Rio de Janeiro economic review *Conjuntura Economica*. On the Santos-Jundiai and the Mogyana there was a continuous decline from 1948 to 1951, after which the Mogyana recovered from 69,230 to 69,720 (compared with 158,610 in 1948), but the Santos-Jundiai figure continued falling to 514,300, as against the 1948 total of 661,099. The Paulista, on the other hand, had by 1952 recovered almost to its 1949 level of 623,496 carloadings, its highest in the five years surveyed, and its success is attributed in the review to a progressive commercial policy and discriminating investment in the expansion of its facilities. On the Sorocabana the five years have seen a sustained increase in carloadings, which have advanced from 249,319 in 1949 to 292,060 last year as a result of development in its area and growing traffic on the Parana-Santa Catharina system, with which it connects at Itarare. Total carloadings of the five systems, however, have fallen year by year in the period reviewed, from 1,892,447 to 1,701,430. It is hoped that capital investment on new works and equipment will continue. In 1952 grade improvements, electrification and rolling stock were the largest industrial items of expenditure.

Hotels Executive Progress

AN encouraging picture of the activities of the Hotels Executive was drawn by Sir Harry Methven, the Chairman, at a conference last week held at the Charing Cross Hotel, which has been restored and re-decorated at a cost of £250,000 after its wartime damage and is now in the front rank of West End hotels. The Executive is spending another £200,000 on renovating others of its 36 hotels. Sir Harry Methven described their hotel bookings for the tourist season as "phenomenal." The cafeteria cars so far in service have proved popular, in particular those on the "Starlight Special" excursion trains to Scotland, and more are coming into use. The charge of 7s. 6d. for lunch or dinner in a restaurant car was "on the high side," agreed Sir Harry Methven, but in the cafeteria car they provided meals at a price which more people could afford, between 3s. 6d. and 4s. Modernisation of station refreshment rooms is making considerable progress and £150,000 has been spent on converting some to cafeterias providing refreshments at popular prices. More packed meals are being introduced and slot machines offering a variety of food and drink, and mobile platform kiosks are among other innovations which are proof of the Executive's commendable efforts to meet the traveller's need for moderately-priced refreshment.

A "Viaduct" Centenary

THE Earlestown Works of the L.M.R. Carriage & Wagon Engineer's Department are still known locally as the "Viaduct," an echo of the old Viaduct Foundry of Jones & Potts taken over on lease by the L.N.W.R. on March 1, 1853, and purchased by the railway outright on May 11, 1860, for £15,000. Last week the centenary of the acquisition on lease was celebrated by the proceedings reported on another page, and by an open day for the public on May 16. In 1853 the works occupied 8 acres. Their present extent is 36 acres, with a covered shop area of 14¾ acres. The name "Viaduct" comes from their proximity to Stephenson's Sankey Viaduct on the original Liverpool & Manchester Railway, and one corner of the site overlooks both the viaduct itself and the cottage used by Stephenson as his office of works during its construction. The township of Earlestown was developed by the L.N.W.R. Its name commemorates Sir Hardman Earle, the L.N.W.R. Director responsible for acquiring the works. The long history of good relations between staff and management were referred to by several speakers at the centenary luncheon, and the interest of the employees in the establishment they serve is well illustrated by the fact that it was not an outside antiquarian, but a member of the works staff who urged the excavations which have recently uncovered some Liverpool & Manchester sleepers and chairs.

Quality in Light Metal Castings

POSSIBLY the most generally recognised feature of the past fifteen years in the field of metallurgy has been the marked increase in the volume of output of light alloy castings. The impetus was no doubt provided by the necessity to meet the needs of designers of engineering and other equipment; and also of railway rolling stock, where the weight/passenger ratio is an important factor in railway operating. In times of keen competition there is a temptation to reduce the quality and finish of a product in order to maintain the volume of production. Such procedure would harm immeasurably the high reputation the engineering industry enjoys in the world's markets, hence the value of the work of the Light Metal Founders' Association in maintaining a level of quality in light alloy castings by the free interchange of technical information and by co-operation between firms. Its members are fully aware that only by so doing will they be able to develop and enlarge the fields of application of light-alloys, and at the same time enhance the reputation of the industry as a whole.

A Scientific Approach to Inspection

MATERIAL inspection is an important function in the process of increasing production. Many occasions arise during an inspector's duties when he can use his discretion, but where finish to close tolerances is necessary much depends on the system employed and the gauges provided; especially is this so where multi-spindle automatics are concerned. British Timken Limited has recently reorganised its system of finish material inspection in the company's ball-bearing factories. The new system, termed "quality control," was introduced when the company employed one inspector for every two producers, not with a view to reducing the inspectors employed, but with the object of recording at each automatic machine the size and quality of the components manufactured, so that a

machine could be stopped immediately it ceased to produce accurately. A specially-designed comparator was introduced which was found to be more accurate than existing limit gauges. Under the new system the inspector selects up to six pieces an hour from a machine for testing: the measurements are recorded on a chart and must fall between two red lines which denote permissible variation. It was found that some multi-spindle automatics were unable to work to the tolerances on certain dimensions. Extensive alterations were made in the tooling set-up and as a result of the new system long runs of bad work were eliminated, and the number of inspectors halved.

Welded Rails on Bridges

A LITTLE over ten years ago the American Railway Engineering Association issued a recommendation that the laying of continuously welded rails over steel bridges should become standard practice. In the January issue of *Railway Track & Structures* there was an interesting symposium of replies by engineers to the question whether experience had proved the recommendation to be sound, and the replies for the most part were in the affirmative. The Chief Engineer of the Delaware & Hudson Railroad, with twenty years' experience of the practice, thought that the main advantage claimed for welded rail on bridges—that of reducing the pounding at rail-joints and consequent vibration of the structure—had been somewhat overestimated in importance; his main object was to avoid breaks in continuously welded rail due to the presence of bridges. Other engineers, however, were more emphatic as to the advantages. It was generally held that the welding should not be confined to the bridge alone, but should extend well beyond it on both sides. If trouble was to be avoided, it was essential that the welded rail should be laid at the correct temperature, and well anchored throughout the length of the bridge, also that on a steel viaduct movement of the structure as a result of expansion or contraction should be independent of any movement of the rails. In the opinion of one engineer, bridges tend to suffer more from impact due to slight settlement of the roadbed at the back of the abutments than from the pounding due to rail-joints.

Transport Tribunal Report

IN its report to the Minister of Transport of its proceedings during 1952, the Transport Tribunal recalls the publication on January 17 last year of its conclusions regarding the British Transport Commission (Passenger) Charges Scheme 1951. These conclusions, to which we referred in our issue of January 25, 1952, are stated to have been issued so that the public and the Commission should have full notice of what the scheme would contain before it was confirmed. Confirmation followed on February 27, 1952. The first part of the scheme, known by that time as the British Transport Commission (Passenger) Charges Scheme, 1952, embodying the amendments recommended by the Tribunal and set out in its conclusions already referred to, came into force within the London area on March 2. The second part applying to British Railways fares outside the London area, was intended to be operative from May 1, but it will be recalled that it was suspended by the intervention of the Minister of Transport and eventually came into force outside London, with modifications, on September 1. Some changes were also made in the original scheme for London and these applied from August 31 last. It will be remembered that in seeking revision of the scheme the Minister of Transport asked the Central Transport Consultative Committee to consider the application of the increases already in force, and that in its report the committee criticised the steps taken to inform the public how travellers would be affected.

During the past year the Tribunal was asked for advice on the British Transport Commission's application for authorisation to be given to an increase of 5 per cent in railway, dock and canal freight rates and charges then in operation. After examining all available data, the Consultative Committee expressed the view that immediate measures were desirable to enable the Commission to obtain additional revenue of the order of £20/£22 million a year, and that the only measures at once available whereby additional revenue of such magnitude could be obtained were an increase of 7½ per cent in railway dock and canal freight rates and charges coupled with a similar simultaneous increase in the Commission's road haulage rates. It was, however, concluded that the additional revenue of £12 million a year obtainable by the proposed 5 per cent increase was the minimum which could be required of these services towards the relief of the Commission's immediate financial difficulties. Regulations authorising the 5 per cent increase in railway, dock and canal freight charges of the Commission were made on November 20 last.

During the year the Tribunal dealt with 14 applications under the Railways Act, 1921, of which 9 were for new exceptional rates and reductions of exceptional rates. Under the Road & Rail Traffic Act, 1933, the Tribunal made 1,451 orders approving agreed charges, of which 1,186 related to merchandise train traffic, 261 to passenger train traffic, and 4 to both traffics jointly. Of this total 216 orders applied to traffic carried by the Road Haulage Executive as well as by rail; 204 of the agreements were new, while the others were renewals with modifications of agreements previously approved. A large proportion of the new agreements was designed to enable the parties concerned to reduce clerical work. The Tribunal received 54 new appeals during 1952 under Section 15 of the Road & Rail Traffic Act, 1933, from decisions of licensing authorities for goods vehicles. Nine of these were not prosecuted. One appeal was dismissed for want of jurisdiction and 38 were heard and determined. In 19 out of these 38 appeals the appellants succeeded. No appeals were brought during 1952 under Section 56 of the Transport Act and no application was made to the Tribunal during the year under the London Passenger Transport Act, 1933.

The Great Northern Railway Board

THE borrowing powers of the Ulster Transport Authority are to be raised from £10,000,000 to £12,500,000 to enable it to assume the capital liability for the 2,250,000 which is the Northern Ireland share of the purchase price of the Great Northern Railway. It is proposed that at first the Great Northern Railway Board which is to administer the system on behalf of the Governments of Northern Ireland and the Republic shall have a total capital liability of £4,500,000 (the total purchase money) of which £2,250,000 will be a liability to the U.T.A. and £2,250,000 a liability to the Minister for Industry & Commerce in Dublin. The board will be liable for payment of interest but not for repayment of the capital. These figures were given by Mr. W. McCleery, Northern Ireland Minister of Commerce, when moving the second reading of the Bill for the acquisition of the G.N.R. in the Ulster House of Commons on April 30. (The report stage and third reading were expected to be taken while we were in the press.)

The board will consist of ten members, five appointed by Ulster and five by the Republic. Its general duty—recognised to be difficult in present circumstances—will be to manage the railway in such a way that the undertaking will produce sufficient revenue to meet charges properly chargeable to revenue, and its first task will be to attempt to reduce the present losses of the railway as soon as possible. It will be left to the board to draw up a scheme of apportionment of the operating results between the two areas, to be reviewed every three years. Capital for new rolling stock and for the workshops will be provided in equal shares by the U.T.A. and the Republic, after ministerial sanction has been given. The present staff will be employed on existing terms of service. Dundalk will remain the principal works and the shops are to become the property of the board, the only exception to the general principle that it shall own no land.

Scottish Region Summer Services

IN the Scottish Region the summer alterations in train services, to be brought into operation on June 8, are very few, other than those connected with the acceleration of through services between England and Scotland. On the East Coast route the "Elizabethan" (last year the "Capitals Limited") is to reach Edinburgh at 4.20 p.m., compared with 4.41 p.m., and it is unfortunate that no change is made in the 5.5 p.m. departure of the connecting train to Dundee and Aberdeen, as through passengers will thus be involved in a 45-min. wait at Edinburgh. Notwithstanding the 21-min. acceleration of the "Elizabethan," the times from London to Dundee and Aberdeen (the latter 11 hr. 3 min.) will be 2 min. slower than last summer. Many of the trains from the South are earlier into Edinburgh, but the departures of connections northward remain unchanged. The "Flying Scotsman," for example, will be due at 5.28 p.m. instead of last summer's 5.39 and the winter 5.50 p.m., but passengers for the North will now be involved in a wait of no less than 1 hr. 17 min., for the 6.45 p.m. to Dundee and Aberdeen. Even the 10.5 a.m. from Kings Cross to Glasgow will be into Edinburgh by 6.2 p.m., 24 min. earlier than now, with 43 min. before the North departure.

As a result, most journeys from points between Kirkcaldy and Aberdeen to south of Edinburgh by the East Coast route are quicker than those in the reverse direction; from Aberdeen, for example, the connection to the up "Elizabethan" makes possible a through journey to London in 10 hr. 40 min., 23 min. faster than in the other direction. The northbound "Queen of Scots," accelerated to leave Kings Cross at 12.5 p.m. instead of noon, and reaching Edinburgh at 7.52 instead of 8.2 p.m., benefits by leaving Edinburgh for Glasgow 19 min. earlier, at 8 p.m., and so is fitted into the sequence of departures from Edinburgh Waverley to Glasgow at the even hours. The only other through acceleration is of the down "Aberdonian," 7 p.m. from Kings Cross, which is 9 min. earlier into Edinburgh and 15 min. earlier into Aberdeen, arriving at 6.40 instead of 6.55 a.m.

On the opposite side of the country, the acceleration of the "Royal Scot" to a 7½-hr. run to and from Euston, has involved starting the 9.30 a.m. from Glasgow Central to Birmingham at 10.5 a.m., in order to keep clear; it stops at Symington instead of Carstairs, and is booked from the former to Carlisle, 67·0 miles, in 67 min. start to stop. The summer 10.6 a.m. Glasgow-Euston relief is moved to 10.15 a.m., and also has a 67-min. booking from Symington to Carlisle. In the reverse direction the principal acceleration, brought into force a short time ago, is of the 11.40 p.m. sleeping car express from Euston to Glasgow, now 12.20 a.m.; this leaves Carlisle at 7.15 instead of 6.30 a.m., is diverted from the Kilmarnock to the Carstairs route, and reaches Glasgow Central at 9.30 a.m. as before. It is relieved by an 11.50 p.m. express from Euston, which takes up the previous working via Dumfries and Kilmarnock, and is due in Glasgow St. Enoch at 9.25 a.m. Both these trains are provided with breakfast cars from Carlisle, and one of these cars is to be used to provide lunch on the 12.50 p.m. from St. Enoch to Carlisle, which gives a good connection at Carlisle from Kilmarnock and Dumfries into the up "Midday Scot."

The summer 10.10 a.m. Euston-Glasgow relief leaves Carlisle at 4.15 instead of 4.30 p.m., and is due in Glasgow at 6.37 instead of 7 p.m.; except at weekends it brings from London to Carlisle the Perth portion which last summer was run independently at 10.20 a.m.; this leaves Carlisle at 4.25 instead of 4.40 p.m., and is due in Perth at 8.23 instead of 8.39 p.m. It is a pity that the 8.10 p.m. from Perth to Blair Atholl cannot be held to make connection with this train, as such a link-up would make possible a comfortable journey even from London to various points on the Highland line without night travel.

On Saturdays the 8.35 a.m. from Glasgow Buchanan Street to Aberdeen is to run direct via Forfar, instead of, as last summer, via Dundee and Arbroath; it will reach Aberdeen at 12.3 p.m., 37 min. earlier. The 10.15 a.m. from Glasgow is to call at Pitlochry without increase of journey time. Among other miscellaneous changes, on Tuesdays, Wednesdays and Thursdays, passengers from Glasgow for the evening Stranraer-Larne boat will leave St. Enoch at 2.20 p.m., instead of (as on Mondays, Fridays, and Saturdays) at 2.50 p.m.; in the reverse direction the connection from Stranraer to the morning boat from Larne will leave for Glasgow at 12.30 instead of 12.10 p.m. It is pleasant to note that, after an absence of two years, the long-established refreshment car service over the old Great North of Scotland line, from Aberdeen at 8.8 a.m. to Inverness via Elgin, and back from Inverness at 12.50 p.m. to Aberdeen, is to be restored.

Cuba a Potential Market

THE visit to this country of a Cuban trade mission encourages the hope that Cuba may have in view the possibility of placing orders here for urgently needed railway equipment. The mission, which is expected to remain for three weeks or more, is headed by Dr. Saladrigas, the Minister of Labour, and consists of six members and a British Adviser who is Mr. Leslie Pantin, Vice-President of the British Chamber of Commerce in Havana. The economic side of the Cuban Foreign Office is represented by Dr. Joaquin Meyer and the National Bank of Cuba by Señor José Berriz. The Sugar Mill Owners' Association has sent two representatives and the Cane Growers' Association one. The mission is completed by a member of the Havana Chamber of Commerce.

Although the Mission is stated to be concerned mainly with the purchase of sugar machinery, it is unlikely to confine itself solely to this matter, and as there are some 6,700 miles of railway directly owned and operated by the Cuban sugar industry, railway equipment may be included in its terms of reference. The Crosland Mission to the Caribbean has already emphasised in its report that the United Kingdom has an unfavourable trade balance with Cuba of about £40,000,000 a year. An expansion in trade with Cuba is therefore dependent on increasing Cuban purchases from this country and orders for railway material of all types would provide a beginning satisfactory to both nations.

The unsatisfactory situation of the British-owned United Railways of Havana has been referred to frequently in our columns and surprise was expressed, when the British Government made its last purchase of Cuban sugar, that an equitable solution of this problem was not included in the agreement. The present trade mission is not directly concerned with this matter, but the opportunity might well be taken to enlist its aid in reaching a solution and thus remove what might prove an obstacle to continued and expanding trade between the two countries.

Prevention and Cure of Cutting Slips

CUTTING slips are among the most serious problems of the maintenance engineer, and are liable to cause, at best, more or less serious traffic delays, and at worst, disaster. The study of soil mechanics is now routine for him, and British Railways Regional Engineers have specialists on their staffs to advise on the subject. In this issue appears the first part of an article exhaustively describing the measures taken to survey and repair two serious slips on the Western Region main line, and replete with practical and theoretical notes and formulæ.

Here and from time to time previously such remedial works have been described in detail, but measures taken to prevent cutting slips have not received so much publicity; discussion on this subject would be salutary. In the case of these Western Region cuttings this is not easy, for, though they run across the natural land drainage towards the Thames, the slope of that drainage behind the cutting is not mentioned. It is stated, however, that fields behind one cutting were becoming flooded, and that when a reliev-

ing ditch was dug along the top of the cutting, a spate of water occurred in it. It is common practice in some countries at time of construction to dig catchwater drains along the tops of any cuttings likely to be affected by surface drainage. Though this drainage is only part of the problem, the spate in the remedial ditch suggests that such a precaution originally might have minimised or even prevented this slip. However, these were some of the earliest cuttings in the country, and there were probably good reasons why no such protection from surface water was considered desirable either at the time of construction or later. Discussion of the problem of prevention of damage by subsoil water would also be welcome.

The Case for Heavier Rails

RAILWAYS which today are in course of making a change in their motive power from steam to electric or diesel-electric locomotives are faced with the problem of the most economic type of track to adopt for the future. This applies particularly to the weight of rail to be adopted. In countries like the United States the weight of rail has been increasing steadily, to 133 lb. per yd. on many railways and to as much as 155 lb. on the Pennsylvania and the Pittsburgh & Lake Erie Railroads, because of the constant increase in the size, axle-loading and speed of steam locomotives, and the damage done to light rails by hammer blow from their reciprocating motion. Now that some railways are rapidly approaching, or have already achieved, complete dieselisation, the question arises whether there may be a justifiable economy in going back to lighter rail in future relaying.

This matter has been the subject of an interesting correspondence recently in our United States contemporary *Railway Engineering & Maintenance*, in which the participants were not by any means in complete agreement. A member of the staff of the Association of American Railroads Central Research Laboratory, basing his opinion on many stress measurements made by his organisation, considered that the gross tonnage of traffic carried over any given route determined rail life far more than the type of motive power used.

The Engineer of Standards & Research on the Denver & Rio Grande Western Railroad took the opposite view. The stress measurements that had been taken by his department, he wrote, confirmed that diesel operation results in considerably less stressing of the rail than operation with steam. The Rio Grande is laid almost entirely through the mountains, with steep gradients and much sharp curvature —a line, therefore, on which the bogie suspension of diesel units, and their consequent flexibility, offers the maximum advantage to track compared with the rigid coupled wheelbase and heavier axleloads of powerful steam locomotives.

The A.A.R. research engineer justified the use of heavier rail on a number of grounds. Heavier rail sections, in his view, have a capacity for carrying increased tonnage that is more than proportionate to the increase in rail weight. They reduce sleeper wear because their greater stiffness minimises the wave action to which the sleeper is subjected; they also reduce the intensity of the soleplate pressure on the sleeper, because the added stiffness distributes the wheel load over more sleepers. This stiffness also enables the rail to bridge over irregularities in the track, so that a less precise standard of tamping is needed, and this in its turn helps to cut down labour in track maintenance. According to this contributor to the correspondence, tests prove that slightly less fuel is required to operate trains over heavier than over lighter rail, presumably because there is less contraflexure of the rails between supports, and therefore less resistance to motion to be overcome.

A third contributor to the discussion, once a track supervisor on the Long Island Rail Road, which carries a dense suburban traffic, contended that part of the maintenance economies credited to the heavier rail ought by rights to be attributed to other track improvements often made at the same time. These include heavier soleplates, sometimes having twice the bearing area of those used with the lighter rails; longer fishplates; an increased number of rail anchors; new ballast, of a quality better than that used previously, laid to a greater depth, and mechanically tamped to give a great uniformity of support to the track. As an experiment, this writer once made all the improvements mentioned, including soleplates designed for 115 lb. and 131 lb. rail and complete anchor-spiking as though for the heavier rail, but still retaining rails of the 90 lb. and 100 lb. sections. The experimental track has since preserved its line and has been as economical to maintain as adjacent tracks laid with the heavier rails.

The general concensus of opinion in the United States would appear to be that diesel units impose less strain on the track than steam locomotives of comparable power; that is to say, it supports the view of the Denver & Rio Grande Western research engineer rather than that of the A.A.R. research department. Indeed, one railway—the Missouri-Kensas-Texas—recently has introduced 107-ton 1,500 h.p. diesel units on a 300-mile division laid largely with 60 lb. and 65 lb. rail up to 40 years old, with 27-ton axleloads thus operating over a line on which the limit axleload with steam power was 23 tons, and no trouble has been experienced with derailments, or fracturing or spreading of the rails. In the last analysis it is probably true that the other track components and the condition of the track generally play an equal part with rail weight in deciding what the life of the rail is likely to be.

Motive Power Statistics

(By a Correspondent)

FOR the years 1938-47 the statistical returns of our railways required only three entries to show the locomotive position at the end of December: (1) operating stock, being the number of locomotives owned, plus borrowings and less loans; (2) the number of locomotives under or awaiting repair in workshops or sheds; and (3) the number available for traffic, being the difference between (1) and (2). The state of affairs before and after the war may be judged from the figures given below:—

Locomotive position	1938	1947
Operating stock	19,666	20,507
Number under repair	3,509	3,987
Number available	16,157	16,520
Repairs percentage	17·8	19·4

The U.S.A. railways, it is interesting to note, set out their motive power position in this way each month, with separate figures for steam, electric, and diesel locomotives.

In 1948 British Railways introduced a new term "net stock" to represent, at the end of each four-week period, their operating stock less the number of locomotives stored or hired. The number stored varied last year from 242 in August to 423 in November, forming a reserve stock which was drawn upon to meet traffic requirements. Stored locomotives are not, however, treated as "available for traffic" and that term now covers only "net stock" less the number under repair. These innovations go far to spoil the statistics as a measure of the motive power at the disposal of British Railways. This is clear from the statement below, setting out the figures recorded at November 30 and December 28, 1952, and at January 25 and February 22, 1953. The steam train miles worked in the four-week periods ended on these dates are added at the foot of the statement.

Number of locomotives	Nov. 30, 1952	Dec. 28, 1952	Jan. 25, 1953	Feb. 22, 1953
Owned	19,092	19,091	19,063	19,011
Stored	423	369	383	403
"Net stock"	18,669	18,722	18,680	18,608
Under repair	3,221	2,869	3,353	3,348
Available	15,448	15,853	15,327	15,260
Steam train miles (000) ...	24,807	23,268	24,503	24,819

Ownership was curtailed by scrapping 28 locomotives in January without replacement and a further lot of 52 in February. So far from the 423 locomotives stored in

November not being available, 54 of them went into traffic in December. That move, and an abnormally low "under repair" return, inflated the December "available" list to 15,853 locomotives, 405 more than in November and 593 more than in February, though in both of these periods 6·6 per cent train-miles more were run than in December.

There is an air of unreality about these end-of-the-year figures. The probable explanation is that because of the incidence of the Christmas holidays, many engines in bad order were not brought into the works or depots in time to be included in the December census. The average number of locomotives under repair at the end of the 13 four-week periods of 1952 was 3,170. In January and February the number rose to 3,353 and 3,348, compared with the highest 1952 figure of 3,312 in October. That seems clear evidence that there was a large carry-over of crippled engines from 1952 to 1953.

The point is important because it has been the custom to lay much stress on the end-of-the-year result, whereas it is the average percentage under repair during the year which really matters. To give a correct view of the position, that percentage should be struck on the operating stock and not on an impalpable "net stock," varying with traffic fluctuations. Spare locomotives in store, which are fit for work, should be shown as "available"; those in bad order should be included in the "under repairs" list. The motive power statistics would then reflect the true state of affairs throughout the system and would leave little room for misunderstandings, such as arose recently over the extent of the reduction in locomotive stock made by British Railways since nationalisation.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Diesel and Steam Compared

May 11

SIR,—In the recent correspondence in your February 27 and March 20 issues between Mr. H. Charnley and Mr. R. Boland, it is obvious that the latter is not acquainted with the facts regarding the economics of steam versus diesel-electric locomotive operation on the New York Central Railroad.

Mr. Boland claims that steam operation showed lower maintenance and fuel costs, with higher train acceleration rates than for diesel electric operation. Careful analysis made by an expert committee last year, and published by the Batelle Memorial Institute, showed an annual operating economy for diesel over steam operation on the 400 miles New York-Buffalo section of this railroad amounting to $3,029,815.

In addition to this substantial economy, it is common knowledge that even the modern steam 4-8-4s just could not maintain this high-speed service. A similar situation has developed on other major American railroads and it is clear that, due to the disadvantages imposed by the use of heavy reciprocating parts, no steam locomotive, however modern, can give continuous service under the high-speed diesel schedules operating today.

Yours faithfully,

F. J. SHEA
Director

The Clyde Engineering Co. Pty. Ltd.,
Clyde, N.S.W., Australia

Summer Timetables

May 14

SIR,—Once again, I think you will agree that the Summer timetables give reason for some comment. One has been led by the Press, particularly the non-technical Press, to believe that there are vast improvements in the 1953 Summer services. In some cases one will certainly agree, but take, for example, the London Midland Region. It, like other Regions, apart perhaps from the Southern, assumes that the majority of the travelling public wishes to travel to and from the London termini or from the larger stations within a few miles of London, for example Watford, and that the provincial traveller is left more or less out in the cold and therefore forced to travel by road for at least a part of his journey, to save time.

The 6.40 a.m. from Euston to Windermere ambles gently along on a very easy timing and eventually arrives at Stafford and waits there for 17 minutes, during which time the 8 a.m. from Euston to Liverpool and Manchester passes and leaves Crewe for those two cities before the Windermere train arrives at 11.1 a.m. If that train ran ahead of the 8 a.m. to Crewe, it would give excellent connections to Manchester and Liverpool from Northampton and other towns in the Midlands. Probably the answer is that there is congestion at Crewe at that time but, surely, this could be arranged?

In the afternoon to catch the "Mid-Day Scot" or the 1.35 p.m. to Blackpool from Euston at Rugby, one must leave Northampton at 1.34 p.m. and wait about an hour at that station. The 2.32 p.m., which is the 12.15 forward from Euston, having spent ten minutes at Northampton, arrives at Rugby five minutes after the Blackpool has departed!

These are two example of, one may say, lack of imagination or want of forethought. One could go on on this subject, but, before closing, may I ask why the restaurant car is removed at Derby at 11.19 a.m. from the 8.15 a.m. from St. Pancras to Manchester, just before lunch time? If my memory is correct, before the restaurant cars were removed on the outbreak of war, this facility was available right through to Manchester Central.

Yours faithfully,

H. W. FRANKLIN

Greenways, Northampton Lane South,
Moulton, Northants

Replacing Old Coaches

May 18

SIR,—Now that the steel shortage is becoming less acute, we may hope that railwaymen will make a great effort to obtain replacements for the large numbers of out-of-date coaching vehicles still in service.

May I express the hope that the needs of branch lines will not be forgotten, and that, for example, the Southern Region will replace that pre-grouping rolling stock which is the rule on important cross-country lines such as Reading-Redhill-Tonbridge. Without modern rolling stock the railways cannot compete successfully with road transport, and it is worth noting that neither shortage of materials nor shortage of finance have prevented bus undertakings (including B.T.C.-owned undertakings like London Transport) from replacing almost the whole of their fleets with up-to-date vehicles. Why can they do it and not the railways?

Finally, may I put in a plea for the elimination from the new rolling stock programme of the outmoded non-corridor compartment coach? Corridor compartment coaches mixed with open coaches are much to be preferred, particularly by many women passengers who, when travelling alone, have feelings of insecurity in non-corridor compartment stock. Moreover, corridor and open coaches are surely much less liable to malicious damage.

Yours faithfully,

M. REDFERN

Cherry Tree Cottage, Shamley Green, Surrey

THE SCRAP HEAP

Singular Slade

British Railways have just spent £140 on renewing the name signs of Slades Green Station in Kent. Now these signs have all to be altered. The station has been called Slades Green since it was built in the 1880s. But local residents say it should be Slade Green, so the extra "S" is to be obliterated.—*From the "News Chronicle."*

The New Look

There is one aspect of spring cleaning that may stir the imagination of the citizen and that is the transformation of his railway terminus. For the first time for many years the daylight, instead of sneaking in hangdog at end of the platforms, beams through the vast conservatory roof and the wrought-iron fan tracery is brightly painted. This gay defiance, in the face of the vulgar behaviour of steam locomotives which stand about for long periods wantonly dirtying everything within reach, may well cause the domestic conscript to reflect that, after all, his lot has not fallen in such an unpleasant place and that to his annual, petulant question: "What's the use of it all?" he has had an answer slightly less dusty than usual.—*From "The Times."*

Rows of Roses

Travelling by L.M.R. parcels train daily in two passenger coaches are 50 "Tudor Roses," 5 ft. in diameter, which are to decorate Regent Street and Haymarket for the Coronation. It was decided to load them in this fashion to obviate damage to the delicate fabric and the electrical equipment. The roses travel from Berkhamsted to Euston and are taken immediately to the sites for erection. The movement is being repeated daily until 1,200 in all have been dealt with.

No Penny Whistles

How much does it cost a railroad to sound its locomotive whistles at crossings, stations, and towers? The *Southern Pacific Bulletin* has found the answer to this question for the 265-mile Southern Pacific line between Houston and Dallas, Texas.

Every day, according to the *Bulletin*, locomotives on that line of road must whistle 6,268 times. The cost of fuel for each toot is about two-thirds of 1 cent; therefore, the cost of fuel for each day's tooting is about $42, and the year's total is $15,330.

However, due to the fact that operating conditions differ greatly on different railroads, any estimate that might be based upon the foregoing study for the cost of whistling for the railroads of the United States as a whole probably wouldn't be worth a toot, the A.A.R. observes.—*From "Railroad Data."*

New Light on Kings Cross

The two great arches that compose the façade of Kings Cross Station have been reborn since the washing of the brickwork was finished. When the sun shines on them the bricks now seem to be almost mustard yellow, matching the yellow of an enamelled advertisement fastened to the wall.

This transformation, on which British Railways are to be congratulated, emphasises the shabbiness of the buildings that have been allowed to spawn in front of the station. When the face of the station itself was shrouded in soot the disfigurement caused by these glorified shacks, though obvious, lost some of its force because the station itself looked so sordid. Today one can see how strange and impressive Kings Cross must have looked when it was first built. It will never be itself again until the whole of the shanty-town is wiped away.—*From the "Manchester Guardian."*

W.R. Coronation Headboards

A special Coronation emblem will be carried above the headboards of four Western Region named trains from May 22 to June 14. They are the "Cornish Riviera," "Bristolian," "Red Dragon," and "Inter City." In the accompanying illustration the emblem is in place above the headboard on the locomotive of the "Cornish Riviera."

One of the emblems to be carried on some Western Region locomotives during the Coronation period

Two small roses for London Coronation decorations being conveyed in the compartment of a L.M.R. suburban coach. A third, larger, rose occupied the other side of the compartment

Charing Cross Hotel

Ten days ago I mentioned the distress of Professor Richardson, R.A., and Mr. John Betjeman at the changed exterior of the Charing Cross Hotel. Yesterday, at a rehabilitation lunch there, only the presence of either or both . . . could have added to my enjoyment.

Our host, Sir Harry Methven, Chairman of the Hotels Executive, made the point that the modernised hotel had 90 new rooms and 50 new bathrooms. He observed without bitterness that the architect . . . had left no plans.

Lord Hurcomb, chairman of the British Transport Commision, enthusiastically supports Sir Harry in his ambition to make this mid-Victorian hostelry into a leading London hotel. He pointed out its advantageous central site, quoting Dr. Johnson's remark that the full tide of human existence flows past Charing Cross.—*Peterborough in "The Daily Telegraph."*

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

VICTORIA

Diesel-Electrics on Mildura Service

Since March 16 passenger and fast goods services between Melbourne and Mildura have been operated by diesel-electric locomotives.

NEW ZEALAND

Railways Show Profit

The railways showed a profit of £50,000 on their last financial year's operations, according to a statement by the Minister of Railways who said that they had absorbed the wage increases allowed during the year and would still have a credit balance in their working accounts.

The surplus for the 1952-53 financial year is only the second in the past seven years. The department incurred a working loss of £1,202,488 in 1951-52 and in addition paid interest charges of £2,999,476. In 1950-51, a small working profit of £5,790 was earned.

Last August it was estimated that the department would make an operating profit of £2,000 in 1952-53. Gross revenue was estimated at £26,884,000 and expenditure £26,882,000.

RHODESIA

Railways Section of Rhodes Exhibition

The railways exhibits at the Rhodes Centenary Exhibition, which opens at Bulawayo on June 1, will be set in an area of some 34,000 sq. ft. Two of the principal exhibits are expected to be one of the new Beyer-Garratt locomotives and Cecil Rhodes's famous luxury saloon. A section of track, electrically-operated points and signals will also be displayed.

There will be a single-storey pavilion occupying 8,000 sq. ft. and containing models, model layouts, and displays. Rhodes's association with the railways in the early days will be shown by a valuable collection of relics.

SOUTH AFRICA

Bellville-Worcester Electrification

Electric traction between Bellville and Worcester, in Cape Province, was inaugurated on April 8. Mr. P. O. Sauer (Minister of Transport), and Mr. D. H. C. du Plessis (General Manager, S.A.R.) were among those who travelled in the inaugural train.

The route mileage, including the Stellenbosch loop, which has also been electrified and brought up to main-line standard, is 123 and the estimated cost is £1,759,484. The final stage of 51 miles onwards to Touws River is estimated to cost another £937,567.

Railway Housing Scheme

The house ownership scheme was introduced in November, 1937, and up to December, 1952, £12,745,684, had been advanced in loans to railwaymen to help them to acquire their own houses. As at December, 1952, the number of houses erected under this scheme amounted to 1,896, and 3,692 ready-built residences had been acquired. Privately bonded properties, numbering 464, were taken over from applicants. The administration has thus provided for the private housing needs of its employees approximately 400 houses a year.

All members of the staff who contribute towards the pension fund and who have had at least five years pensionable service, are eligible for housing loans which are granted at an interest rate of 3 per cent. per annum on the monthly balance outstanding.

All properties acquired under this scheme are fully insured by the administration through its own Departmental Insurance Fund. The premium is paid by the administration on behalf of the servant and added to the loan account. Loans granted under this scheme are repayable in monthly instalments by deduction from the employee's paysheet.

CANADA

Coal for Railways

Federal Treasury subventions to help mines to sell coal to the railways are to be increased in Eastern and Western Canada. Subsidies now total between $6,000,000 and $7,000,000 a year.

In Nova Scotia some small mines have been threatened with closure because of a threatened shutdown in the railway market. Subventions on coal bought by railways are paid on the basis of a formula worked out several years ago, but now being changed. Meanwhile, it is understood, the C.N.R. has agreed with the government to take coal from Canadian mines to approximately the same amount as it bought last year with the Dominion Coal Board overseeing arrangements. Mr. Donald Gordon, President of the C.N.R., told the Commons Railway Committee the company could not buy coal from Canadian mines when it was not priced competitively with United States fuel.

New Fresh Fish Container

A model of a new iceless refrigerated fresh fish container for less-than-wagonload quantities that will help both coastal consignors and inland retailers to supply better quality fish has been demonstrated by the Canadian National Railways. The container, designed by engineers of the C.N.R. research and development department, will enable fishery plants to ship direct to smaller retailers. It can also be used for other perishable commodities. Using a chemical solution as refrigerant, the container now makes it possible for pre-chilled fresh fish to be delivered in the same prime condition as that in which it left the plant.

During tests, the container showed that it could maintain a consignment of fresh fish pre-chilled to 29° for periods

Gold Coast Harbour Extension

Loading platforms being laid out at Takoradi, Gold Coast, where a hill has been removed to make room for harbour extensions costing £3,250,000

of over three days with less than 1° variation. Standard containers will have a capacity of 160 lb. and will maintain a temperature of 29° for periods over three days. Apart from enabling smaller retailers to receive fresh fish daily direct from the coast, it is hoped to extend markets for this produce by providing less-than-wagonload freight and express service to points not directly served by rail. It is expected that also similar markets at points where refrigerated express services not economically possible at the moment will be opened.

The container shown features aluminium double-wall construction throughout. The space between the walls is filled with block insulation. The refrigerant is a mixture of sodium sulphate and water contained in sealed rubber tubes mounted in removable aluminium plaques, which are placed to screen completely the load outside heat.

Retroactive Pay Increase Award

A possible railway strike threat was removed by an arbitrator's decision favourable to the Brotherhood of Railroad Trainmen in a dispute with the railways. Mr. Justice R. L. Kellock of the Supreme Court, gave a verdict largely upholding the Brotherhood's contention on retroactive application of a 12 per cent wage increase obtained in February under the threat of a general strike.

The main point at issue in the arbitration, which was agreed to by the disputants, was the effect of the 12 per cent increase on wage differential between groups in some types of freight service. The railways objected to a straight percentage increase as tending to change differentials. Meanwhile, cheques for retroactive pay increases back to April 1, 1952, were held up pending settlement of the paint.

UNITED STATES

Pacific Electric Railway

The Western Transit Systems, Inc., has formed a new corporation, with headquarters at Los Angeles, to take over all the passenger operation, by rail and road, of the Pacific Electric Railway, a subsidiary of the Southern Pacific, at a cost of $8,000,000. The Pacific Electric, which serves 5,000 square miles in Southern California, mostly between Los Angeles and San Bernardino, operates 51 route miles of line in passenger service, 145 miles in passenger and freight service, and 538 miles in freight service only; it is continuing its own freight operation. In addition, it covers 1,055 route miles of highway with motor services. The passenger fleet comprises 161 rail coaches and 660 road motorcoaches, and there are some 3,000 employees on the passenger side of the organisation, which comprises a total of seven rail and 39 bus routes.

The property acquired by the new corporation includes stations, shops, garages, and servicing and storage facilities. Approval by federal, state, and municipal regulatory bodies is necessary before the sale can be made effective.

Expanded New York Suburban Service

Hitherto the suburban passenger service of the New York Central System between New York, Mount Vernon, and White Plains, though dense and heavily-patronised at the morning and evening rush hours, during the slack hours has been intermittent only, with long gaps between trains. As an interesting example of the revival of interest in U.S.A. rail travel, the midday service over this line, from March 16, has been expanded to a half-hourly basis, with trains from North White Plains to New York at 15 and 45 min. past the hour, and out of Grand Central Terminal at 24 and 54 min. past the hour. In all, 59 trains will now run daily from North White Plains to New York, a distance of 24 miles.

This important and encouraging step has been taken by the New York Central management to stimulate midday travel, and is in conjunction with a reduction of 25 per cent in return tickets used on trains reaching Grand Central Terminal after 10.30 a.m., clear of the rush period.

BOLIVIA

Progress of Bolivia—Brazil Railway

The construction of the international railway between Corumbá (Brazil) and Santa Cruz de la Sierra (Bolivia) is up to schedule and the railhead has now reached Km. 450. It is hoped that before the end of 1953 the track will be laid over the whole distance.

ISRAEL

New Line to Mineral Areas

The construction of embankments and bridges for a railway from Naane South to Beersheba is to begin. Work will begin in the first instance from Tel el Kuneitra, some 40 km. north of Beersheba.

Construction of this line is held to be of vital importance to the future development of the country's economy and, in particular, to the exploitation of its mineral resources. It will connect Beersheba, a focal point for the transport of potash from the Dead Sea and of phosphates and copper from the Southern Negev, with the Jerusalem-Tel Aviv-Haifa line.

FRANCE

Inter-Station Competition

As in former years, the S.N.C.F. organised in 1952 a competition between stations for the best layout commercially. The rules allowed considerable initiative to be exercised, the criterion being the attractive nature of the station, or part of it, from the passenger point of view; this could vary from the provision of a special facility to a picturesque garden layout. Stations were divided into five categories by regions. First prizes for stations in the principal station category were awarded to the following: Nancy, Dunkirk, Niort, Toulouse Matabiau, Dole Ville, and Narbonne.

Sugar Beet Traffic

The sugar-beet crop in 1952 was below standard in the north. Loadings on the Northern Region were approximately 1,300,000 *tonnes* of beet and 528,000 of pulp. Figures for the two previous years were 1,553,700 *tonnes* of beet and 753,800 of pulp in 1951 and 1,820,500 and 813,500 in 1950.

The large number of refineries in the north makes this traffic susceptible to road competition which offers the facility of direct conveyance from farm to refinery. It has been found that for distances up to 20 miles most beet passes by road, but for distances of more than 30 miles rail conveyance is of more importance.

WESTERN GERMANY

Restoration of Hohenzollern Bridge

The Hohenzollern Bridge at Cologne carries some 600 trains, in each direction, in 24 hr. The bridge had four tracks before the war but only two are now available. The temporary central span, a parallel-flanged steel truss girder of German Army pattern, has now been replaced by a new permanent structure, a steel arch girder bridge of 551 ft. span, resembling in shape that of the former bridge and of the adjacent spans which are still intact.

The reconstruction was necessary, not only for the safety and speed of railway operation but also to remove the temporary intermediate pier which was a hindrance to Rhine shipping. It was also for the sake of the Rhine shipping that the construction of the new arch had to be carried out without the aid of scaffoldings, in cantilever fashion. During the cantilever construction, certain piers and spans were used as counterweights. Though the new arch girder span is of the same shape as its predecessor it was found possible to reduce the weight from 2,800 to 2,100 tons by using light-tensile steel and by other means. On the other hand, the unusual construction method called for the temporary use of consider able quantities of steel.

The assembly of the new central arch in a position parallel to the temporary structure was begun on June 3, 1952. The replacement of the temporary structure by the new structure took place during a 27-hr. possession on November 30, when the two structures were jointly pushed sideways over 34 ft., each of the two structures running on a different track of strong mortar-embedded steelplates on the piers.

During the movement, the new structure rested on special bogies. Power was supplied by electrically-operated winches, pulling the new structure which, in turn, pushed the temporary structure sideways. The movement itself took place in stages 1 m. long.

Repairing Unusual Slips on Western Region Main Line—1

Causes of slips at Twyford and Sonning and remedial measures taken

By John P. Slee, B.Sc.(Eng.), Civil Engineer's Department, Western Region

WITHIN twelve months of each other, two large slips occurred on the down side of the Western Region main line to the West of England. Although three miles apart, both occurred at a point at which the line passes in cutting through the Reading Beds where they are thinly overlaid by pebble gravel, as shown from their positions on the geological map on this page.

Geological Conditions

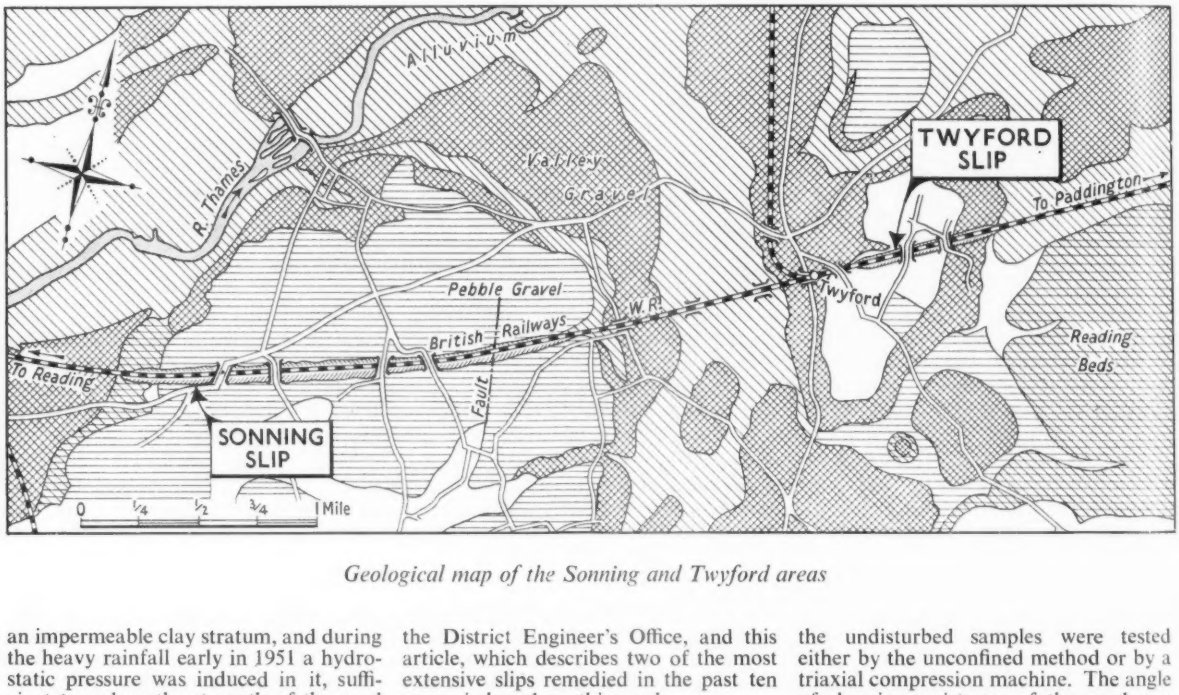
The slip at Twyford was caused by the existence of a sand layer 11 ft. below rail level and 36 ft. below the original ground level. This layer is covered by an impermeable clay stratum, and during the heavy rainfall early in 1951 a hydrostatic pressure was induced in it, sufficient to reduce the strength of the sand to such an extent that the cutting slope failed. Three tracks at the foot of the slope were pushed upwards and outwards, and a large crack developed at the top of the cutting.

The slip was remedied by keying the slipping mass to the stable stratum below it. Excavation was carried out to a level below the sand layer and the holes were back-filled with dry stone, thus forming buttresses. The hydrostatic pressure was relieved by allowing the subsoil water to enter the track drainage before it reached a dangerous level.

Slips caused by the existence of a permeable layer subject to hydrostatic pressure overlaid by clay have previously been experienced, but the slip at Twyford is the first encountered in the Western Region, and so far as the author is aware, the first to be reported on in this country.

At Sonning, though the natural strata were similar, the slip was not profoundly influenced by the hydrostatic pressure in the sand layer as this was not great. The cause of the failure was a sand layer, curved in section, in the shape and position of a typical circular slip and remedial measures adopted were similar to those at Twyford.

The investigations into the causes of these slips and the observations of their movement were carried out as routine tasks of the Soil Mechanics Section and the District Engineer's Office, and this article, which describes two of the most extensive slips remedied in the past ten years, is based on this work.



Geological map of the Sonning and Twyford areas

Cause of Slip at Twyford

The first signs at Twyford were noted on the nearest track, the down main line from Paddington to Reading. The movement, which was immediately corrected, consisted of lifting the track and slewing towards the opposite side of the cutting. This was accompanied by movement of a dry stone wall, the extent of which, up to March, 1952, is shown in the illustration on page 593. On inspection of the top of the slope, a crack about 13 ft. back from the edge as shown in Fig. 1 could be seen; this eventually formed a small "cliff face" about 3 ft. high.

An indication of the deep-seated nature of the slip was afforded by the movement of a telegraph pole within the slip area which was seen to lean away from the tracks, indicating that the slip plane was below the bottom of the pole. When these movements were first noted, a soil mechanics investigation was requested, whose findings are described in this article.

The method used was to take one detailed geological cross-section at the worst point in the slip. This approach was preferred to taking two or three sections of indifferent accuracy, the total number of holes being limited by the urgency of the work. The boring tackle was the normal post hole auger type and the undisturbed samples were tested either by the unconfined method or by a triaxial compression machine. The angle of shearing resistance of the sand was found from a shear box test.

The cutting when first constructed had a slope of 1:3, the strata penetrated being typical of the Reading Beds—alluvial material deposited during the Tertiary Era. Below the topsoil lies a 10-ft. layer of coarse gravel and sand, followed by a stiff, dry clay mottled in light grey, brown and green, and shot with streaks of bright red. At 36 ft. below ground level and 11 ft. below rail level, is a layer of fine grey sand up to 18 in. thick, beneath which is another stiff clay stratum of dark grey laminated and fissured, containing a high proportion of silt.

The clay of this cutting is suitable as puddle clay and the toe wall referred to previously was constructed to allow a

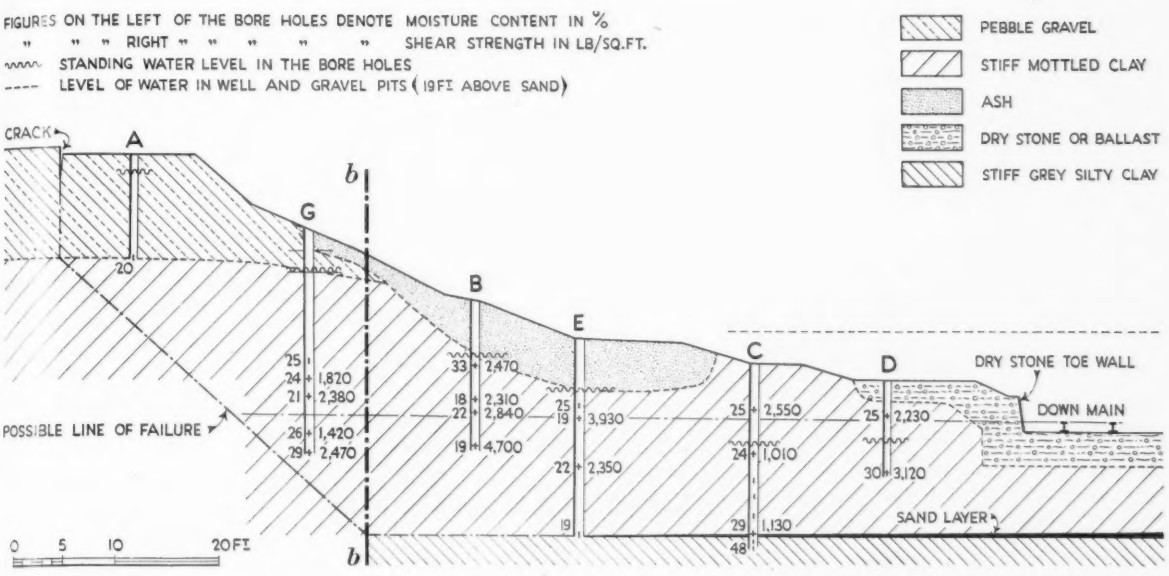


Fig. 1—Cross-section through the worst part of the slip at Twyford

siding to be built behind it to facilitate its removal. The clay was then replaced by ash; the result of this work is shown in the cross section, Fig. 1.

Surface and Subsoil Water

Heavy rainfall early in 1951 resulted in the collection of a large quantity of surface water in the vicinity of the slip. The fields behind the slip were becoming flooded, and a ditch was dug along the top of the cutting. The resultant spate of water showed how much had been running into the area previously. The track drainage, though working efficiently, terminated in a 12 in. dia. bore pipe which was running full bore, and it appeared likely that water from the drains was percolating under the slipping area, and an indication of this level at the time of the investigation is given in Fig. 1; it is 19 ft. above the sand layer, and 8 ft. above rail level. It can be stated in general terms that the hydrostatic pressure in the sand layer became sufficiently high to equal the overburden. At this stage the clay mass might be said to be "floating" on the sand layer, and the stability of the slope depended on the passive resistance at the toe, and on the strength of the clay.

This type of slip normally reaches the limit of its movement quickly. In this case, after the first movement the hydrostatic pressure was relieved and further rapid sliding did not occur. After the slide, the plane of failure became a great source of weakness and slow movement continued until arrested by remedial measures adopted.

Ascertaining the Plane of Failure

The only definite assertion is that the stresses in the clay at the moment when movement first took place were slightly greater than its strength, and certain assumptions are necessary in attempting to explain the cause of the slip. The calculations should not be regarded as representing exactly the forces and stresses acting at the instant of failure. Their purpose is to show that, on the fulfilment of certain reasonable assumptions, failure could have taken place in the manner described.

Other possible explanations were investigated and it was found that they require the strength of the clay to be lower before failure takes place. The calculations therefore demonstrate the most likely cause of the slip. The effect of the hydrostatic pressure on the strength of the sand is illustrated in Fig. 3. The internal shearing resistance was found by experiment to be 340 lb. and the weight of overburden 130 lb. per cu. ft. The hydrostatic head observed at the time of the investigation should be taken as a minimum because, as mentioned previously, it had been relieved by the movement of the slip. At this head the shear strength of the sand layer would be 520 lb. per sq. ft. The maximum value of the hydrostatic pressure is reached when it equals the overburden. A higher head would have the effect of lifting the clay mass, the pressure increasing only sufficiently to overcome the resistance of the clay mass to distortion.

It is assumed that the worst possible condition applied when failure first took place—when the strength of the sand layer was zero. This assumption is justified by the observation of the ground water table indicated by the well and the gravel pits, which at the time stood at a level approximately 19 ft. above the sand layer. It was necessary then to find the position of the plane of failure where it passed through the clay stratum, and determine the shear strength giving a factor of safety of 1. After a process of trial and error assuming a wedge-type failure, the line as shown in Fig. 2 was determined.

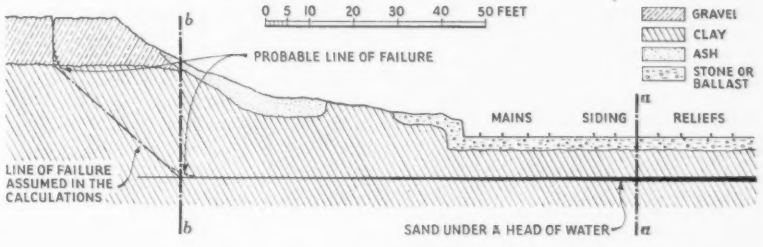


Fig. 2—Slip at Twyford: cross-section showing strata

If the section b-b is assumed to be unsupported, and a typical wedge failure analysis is applied, the shear strength of the clay is found to be 1,580 lb./ft.^{2} at the moment of failure. There remain two other forces to be taken into account. One is the passive resistance of the clay between the ballast and the sand stratum, and the other the active pressure of the ballast. These forces are assumed to act at the cross section marked a-a in Fig. 2.

The pressure distribution assumed is shown in Fig. 4. The intensity of

pressure m-p caused by the overburden is:—

$$W_B\ h_B \left(\frac{1 - \sin\phi}{1 + \sin\phi}\right)$$

where

W_B = unit weight of the ballast = 90 lb./cu. ft.
h_B = depth of the ballast = 3 ft.
ϕ = angle of shearing resistance of the clay
$\therefore = 0.$
$\therefore P_{E1} = 90 \times 3 \times 6$ lb./ft. = 1,620 lb./ft.

The passive resistance P_{E2} is equivalent to the force that would be exerted if there were no overburden of ballast.

$$P_{E2} = \frac{H}{2}\left[\gamma H \tan^2\left(45 + \frac{\phi}{2}\right) 4c \tan\left(45 + \frac{\phi}{2}\right)\right]$$

Where

H = thickness of the clay stratum = 7 ft.
γ = unit weight of the clay = 130 lb./cu. ft.
C = the cohesive strength of the clay.
$\therefore$ = 1,250 lb./sq. ft.

Substitute these values:

$$P_{E2} = 20{,}700 \text{ lb.}$$

The active pressure was determined from a nomograph[2] and was found to be negligible.

Thus the passive earth resistance ($P_{E1} + P_{E2}$) equals 22,320 lb. When failure took place the horizontal forces acting on sections *a-a* and *b-b* Fig. 2 must have been equal and the shear strength of the clay along the plane of failure would be 1,250 lb./ft.[2]

As at Twyford the first signs of trouble were indicated when the tracks began to move. The slewing effect was not so noticeable, but the track was lifting at an alarming rate. The movement was confined to the down main line, that nearest to the toe of the cutting. A crack developed three-quarters of the way up the bank and began to open rapidly.

The movement of the slip was recorded in terms of the amount that the track had to be lowered to keep it at its original level. This cannot be regarded as a scientifically accurate measurement as it is the sum of a number of observations made by the ganger in charge of the lowering. The total of the observations is approximately correct as can be judged by the fact that the pipes of the cess drain were well above rail level. A diagram showing this movement and its relationship to the programming of the work is shown in Fig. 5.

The slip developed rapidly here, and the remedial measures were agreed on the basis of preliminary reports before the soil mechanics investigation could be regarded as complete. The slip was reported on January 21, the soil mechanics investigation began on February 5, and materials were unloaded on the site on March 3, by which time the down main line had been lowered about 13 in.

The method used in the soil mechanics investigation was the same as that which had been successful at Twyford. A geological cross-section was determined at the worst part of the slip. Hand borings were used for holes up to 21 ft. in depth, and the two holes which needed to be 41 ft. and 32 ft. deep were put down with a mechanical boring rig. The findings of this investigation are shown in Fig. 6. The positions of the boreholes and the shear strengths of the clay samples are given. About 32 per cent of the undisturbed samples were tested in a triaxial compression machine and the rest by the unconfirmed method.

The cutting is 54 ft. deep at this point

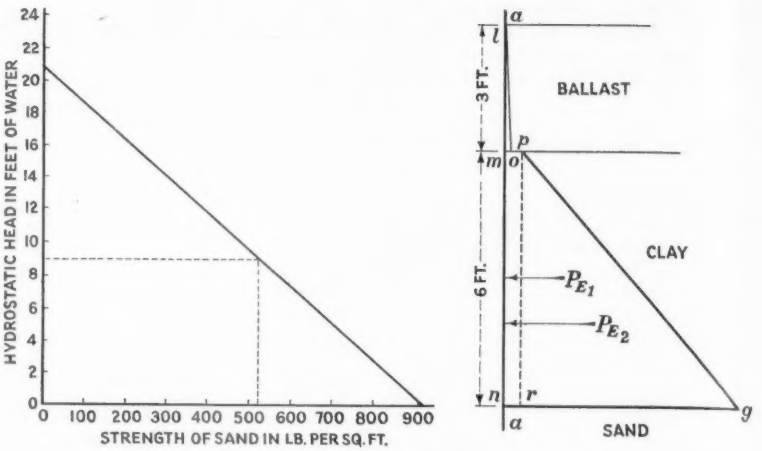


Fig. 3 (left)—Influence on the hydrostatic head on the sand strength, and Fig. 4 (right)—earth pressure diagram at cross section a–a

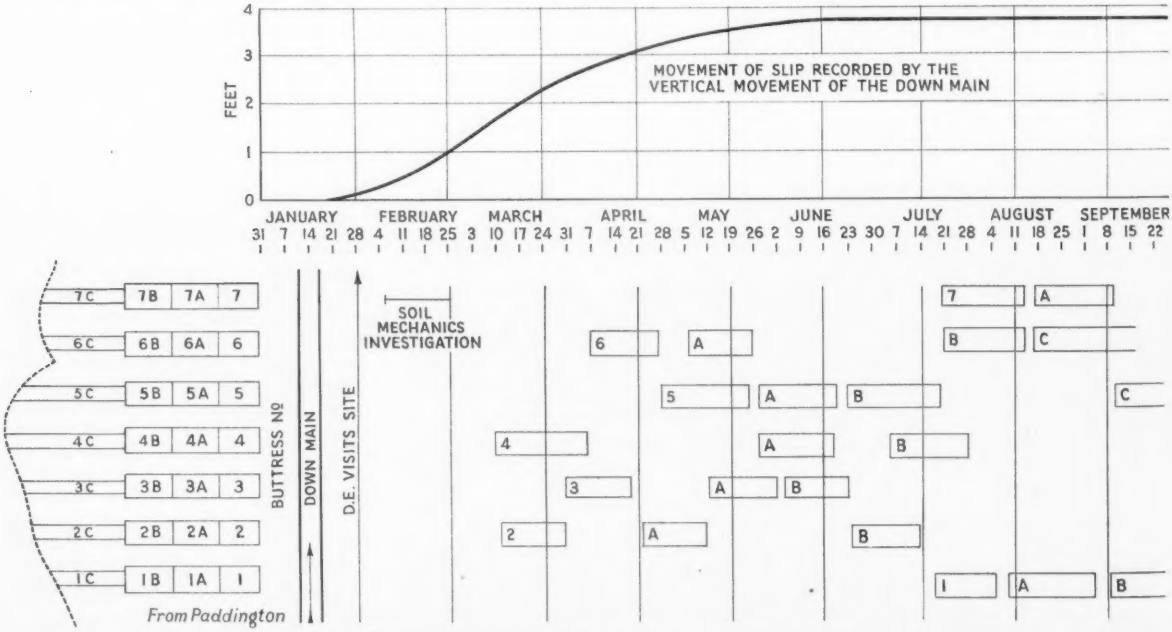


Fig. 5—Progress chart of the work and movement of slip

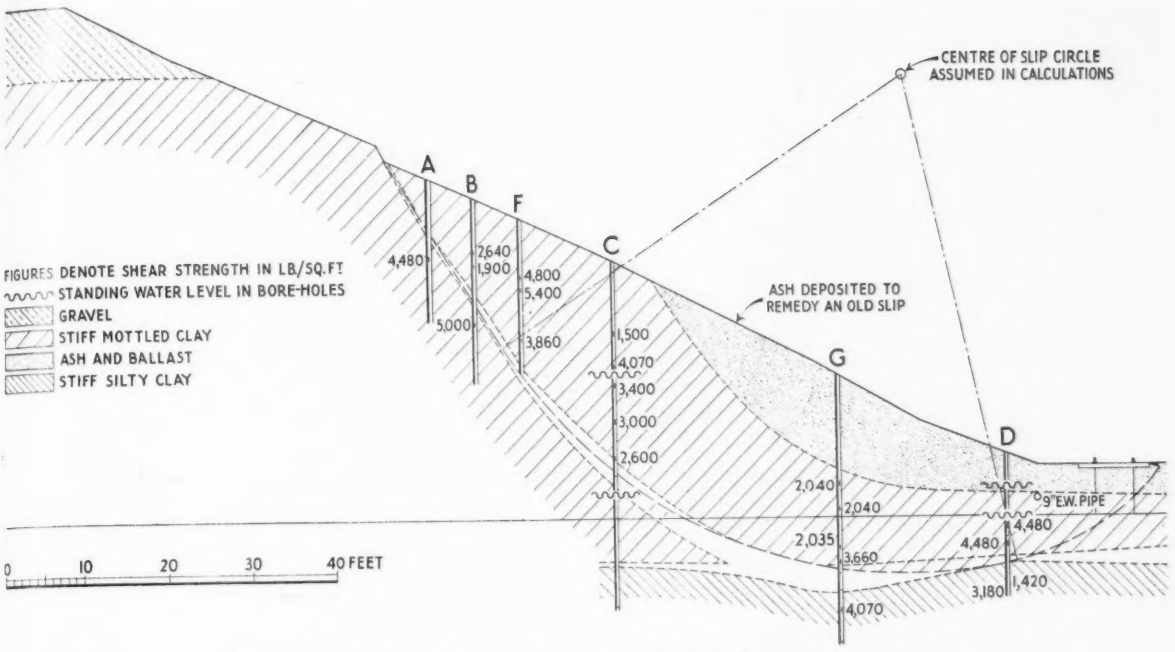


Fig. 6—Cross-section through the worst part of the slip in Sonning Cutting

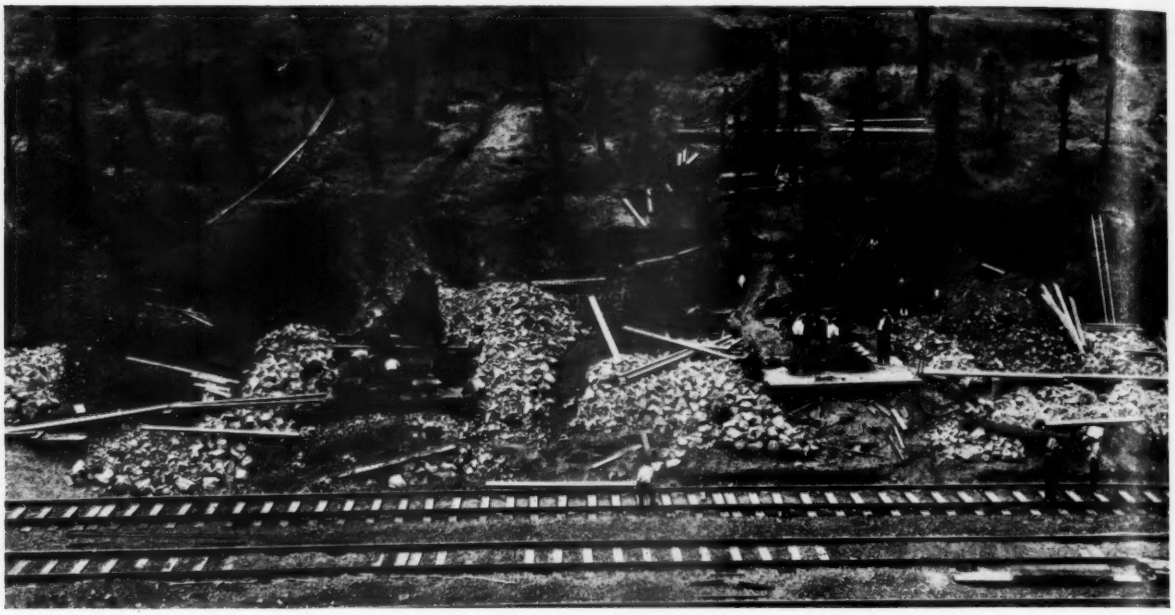
and its slope is 1:2. The horizontal strata are for practical purposes identical with those at Twyford except for variations in depths. The unusual feature here is the presence of a curved sand layer in the position shown. Considerable care was taken to verify this unusual configuration, three boreholes being put down within 11 ft. and the investigation consequently took longer than had been expected.

A slip of which there is now no record had occurred some 50 years before. The remedial measures then taken consisted of removing a large quantity of clay to the depth shown in Fig. 6, and replacing it with ashes. The object of this work and the type of slip which it counteracted are unfortunately not known. It was certainly successful as no movement had been noted until the beginning of this year.

The cutting runs across the natural land drainage towards the Thames, and the gravel stratum was saturated with water which flows down the cutting in large quantities. The water levels recorded in the boreholes after leaving them for 48 hours show that a hydraulic gradient exists between the curved and the horizontal layers. This argues that there is an outlet for the water in the horizontal layers, possibly caused by the boreholes, and implies that the level observed in the horizontal sand layer is the maximum under existing conditions. The track drainage was in good order, a steady flow being maintained in the direction of Reading. The ballast was dry and little water was found at the junction between the ballast and the formation.

Sonning Cutting is an outstanding example of the use of vegetation to stabilise a clay bank and trees up to 2 ft. in

Slip on down line, Twyford Cutting



Sonning slip, showing remedial work in progress

girth and 40 ft. high grow throughout the cutting. The slip having once begun, it was felt that the important thing was to lessen the adverse effect of the wind forces on the slipping mass. The trees in the area were therefore cut down to a maximum of about 15 ft., and it was ensured that they were not killed in the process.

Reinforcing Effect of Roots

It is recognised that these trees perform a useful function in that their roots reinforce the cutting slope. It is felt that the movement only reached its maximum rate when the tree roots had been broken, and that without this action the slip might have reached the limit of its movement before remedial measures could be applied.

It has been suggested that the stratum may be the trace of the curved bank of an old river. A sharp bend in a river bed might cause sand to be deposited on its bank in this fashion, and the part of the sand layer exposed when the slip had developed fully displays an appearance that corroborates this theory.

Against this theory are two facts. First, the clay on both sides of the layer has similar characteristics which indicates that the clay was deposited on top of the horizontal sand lens and that the curved layer is a later phenomenon. The second objection is that the presence of the horizontal layer vertically beneath the curved one is hard to explain on the original hypothesis.

The position of the curved layer resembles markedly the possible position of a similar type of failure to that observed at Twyford. It is possible that the slip which occurred 50 years ago was of the same type. The remedial measures could have been effective because they reduced the hydrostatic head by allowing ingress to the track drainage. This is suggested by the fact that the maximum level of water in the sand lens is coincident with the level of the centre cess drain.

The slip having once occurred, and a drainage channel opened, the water passing through the slip plain could have carried sand with it which was deposited to form the stratum. The arguments against this theory are that the sand appears to be a natural deposit and it also resembles closely the sand of the horizontal layer.

This last point implies that the sand was deposited by water moving upwards through the slip plane, a very unlikely supposition; the presence of sand in a slip plane is an unusual feature.

(*To be continued*)

TELEPHONE INQUIRY BUREAU FOR SHEFFIELD MIDLAND.—A new telephone inquiry bureau for all passenger train service inquiries by telephone was opened on May 7 at Sheffield Midland Station. The new bureau gives a service covering all lines from Sheffield and has up-to-date equipment for dealing with the work. It makes possible the segregation of telephone inquiries from those made in person by the public, which will result in an improved service.

PARCELS SERVICE TO CONTINENT *via* HOOK ACCELERATED.—Parcels for principal destinations in Holland and certain places in Western Germany *via* Harwich and the Hook of Holland, if handed in at Liverpool Street Station Parcels Office before 3 p.m. (Mondays to Fridays), can be delivered by the following afternoon. No additional charge is made. Acceleration has been made possible by immediate Customs clearance of parcels at Harwich on arrival of vans from Liverpool Street, and conveyance by the night mail steamer to The Hook. Any articles normally accepted in Great Britain for conveyance by passenger train, with certain exceptions such as single articles weighing over 100 kg., can be forwarded to the Continent by this accelerated service.

NEW RANGE OF QUASI-ARC ELECTRODE HOLDERS.—A new range of electrode holders suitable for all sizes of electrodes from 16 s.w.g. to $\frac{1}{8}$ in. and specially designed for long life under robust conditions is being made by the Quasi-Arc Co. Ltd. The jaws are made of a special wear resisting copper alloy and slots are provided to give five welding positions covering all possible requirements. The specially shaped grooves provide a strong positive grip on the electrode in each position. The electrode holders each have a tough pressed steel body to resist distortion, and current is conducted to the top jaw by flexible copper strips. The springs are of stainless heat resisting steel and fully insulated. A simple shakeproof mechanical cable connection gives excellent conductivity and a cable covering grip relieves all tension on the connection. The range consists of three electrode holders. Type EH/200, for welding currents up to 200 amp. and electrode sizes 16 to 8 s.w.g.; type EH/400A, for welding currents up to 400 amp. and electrode sizes 16 s.w.g. to $\frac{1}{4}$ in., and type EH/600A, for welding currents up to 600 amp. and electrode sizes up to $\frac{3}{8}$ in. dia.

MURROW WEST STATION CLOSING.—The Eastern Region announces that on and from Monday, July 6, 1953, Murrow West Station will be completely closed. The station ceased to deal with parcels and freight train traffic on September 1, 1947. Passenger train services to Peterborough and Wisbech will continue to be available from Murrow East Station, and there are omnibus services operating in the Murrow district to and from March and Spalding.

Reclamation of Bolts and Nuts

Novel system at the Chiswick Works of London Transport

General view of the reclamation section at Chiswick Works

A NOVEL system has been developed by London Transport for reclaiming used bolts, nuts, studs and so on, from its 10,000 road vehicles. More than 65,000 items are being reclaimed weekly with the present layout, which is capable of extension if required.

The system shows a saving of approximately half the cost of new components, which alone fully justifies its introduction. Furthermore, continuity of supply is assured when new components are scarce or subject to long delivery. Frequently alternatives are found when a part is obsolete, while bolts, studs and screws can be cut to shorter lengths or other forms as required.

Another important feature is that the system is operated by elderly or partially disabled personnel. The method of reclamation varies slightly with different components; the largest number of operations involved is in the case of bolts, which are sorted, identified, viewed, and have their threads dressed as required, before being packaged for storage.

Reclamation of Bolts

The reclamation section was established primarily to deal with the general stock list bolts and studs used for ordinary fastenings on London Transport road vehicles. These have for some years been made from 40-ton steel with rolled threads and upset heads. Special highly-stressed components made from higher-quality steel, as well as those cut from bar stock to individual requirements, also pass through the section, being identifiable by special markings.

After removal during vehicle repairs the bolts are delivered in bulk to Chiswick works where they are cleaned in a caustic wash. Sorting is carried out in two stages, first by diameter and then by length, type of head and so on. Unserviceable bolts are rejected. The work is done manually at five special benches, each consisting of a battery of small bins arranged in a curve, the bins being open in front and having doors at the back.

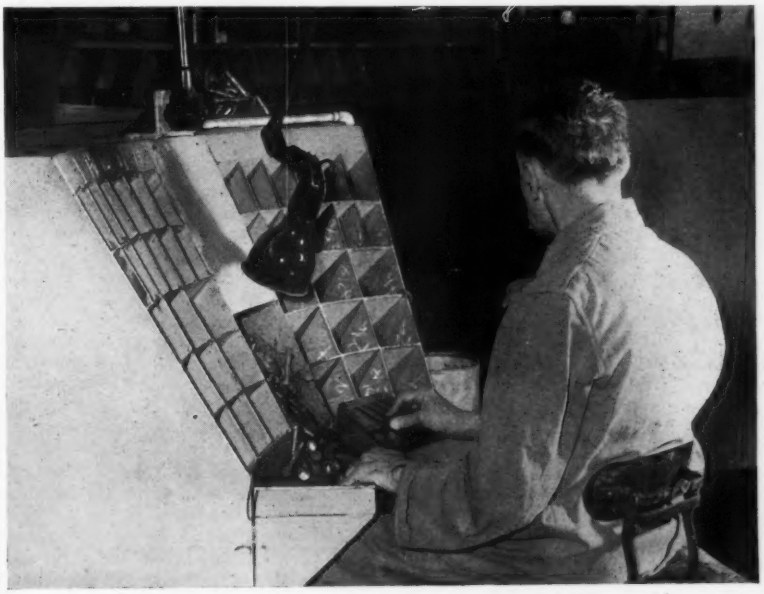
Bolts to be sorted pass from a hopper at the top down a central chute to the bench, where the operator gauges them to determine diameter and length of shank, and puts them into the appropriate bins. Receptacles for special types, which appear less frequently, are grouped separately at the sides.

Sorted bolts are removed from the back of the bins to a viewer's bench to be identified for their part numbers. A sample of each type identified by the section is tagged and displayed on a sampling board. This is intended mainly for identification purposes, but is also useful in aiding the selection of suitable alternatives where regular parts are out of stock, and serves to draw attention to components of common dimensions from different manufacturers, where there may be scope for reduction in the range of parts.

From the viewer's bench the bolts go in batches to storage bins, and advice is passed to the progress and materials department that they are available. As no further work is done on them until an order is placed by that department, the output of the reclamation section is geared to the demand. For dressing the threads a standard power-driven screwing machine is used, the dies being set to the average effective diameter for a particular thread. A thread at the top of its manufacturing tolerance receives a light cut and one at the lower limit is merely cleaned; in this way the advantages of the initial thread rolling process are not lost.

At intervals, samples from each batch are withdrawn for inspection as to gauge, so providing a check on both the general accuracy of the batch and wear in the screwing dies. This is intended as a check on the thread dressing process and not on the accuracy of the individual part, where a reclaimed bolt is found to have a slack thread it is rejected. The cutting lubricant remaining from the dressing process is found to provide sufficient protection for the

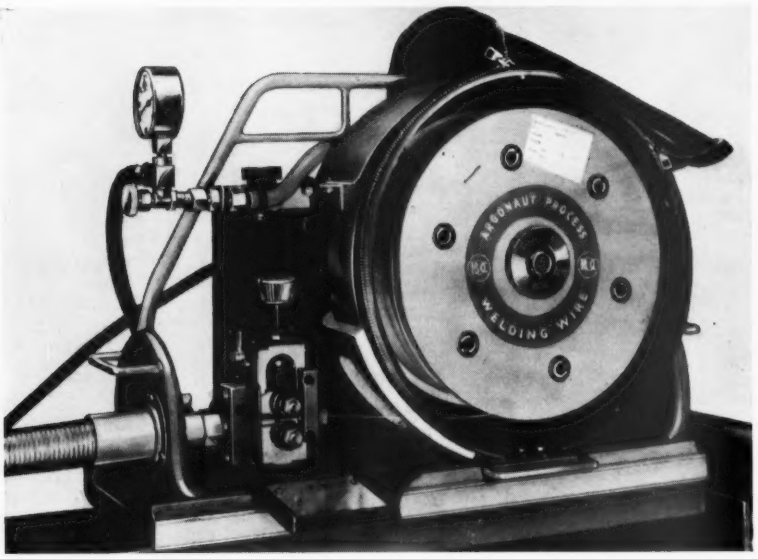
(*Continued on page* 596)



One of the five special bolt and nut sorting bins

The Argonaut Welding Process

Using the inert gas shielded arc with consumable electrode and automatic regulation



The Argonaut unit with cover removed showing the wire feed. The drive rollers are adjustable for speed and tension

THE welding of metals in the vertical and downhand positions requires considerable skill, and the Argonaut process described in this article has been designed with the object of simplifying the operation. The equipment, which is manufactured by the British Oxygen Co. Ltd., uses a shielded arc with d.c. current (electrode positive) of relatively high amperage, 50,000 amps./sq. in. minimum, on a continuously fed bare wire of small diameter. The high current gives a very fast deposition rate, and this, together with the metal transfer across the arc, permits welding in all positions, giving the process a large field of application where relatively heavy section aluminium is welded *in situ*.

Welding Process

At the beginning of the operation the electrode or filler wire is brought forward so that it projects about $\frac{1}{2}$ in. from the nozzle of the gun. When the trigger is pressed, the welding circuit is switched on and argon starts to flow. The tip of wire is then brought down to the face of the joint and the arc is struck. At this stage a relay starts the wire feed motor, the wire is brought forward, and the burn-off action continues. The fusion rate is said to be considerably higher than with conventional arc welding, consequently a higher weld speed is obtainable.

No flux is needed, and welds by this process are claimed to be free from slag and inclusions, and from post-weld corrosion problems. With multi-pass techniques there is no practical thickness limit, and comparatively few passes are needed because of the large amount of filler metal which can be deposited in unit time. Thus metals down to $\frac{3}{16}$ in. thickness may also be welded by using a small diameter electrode wire and lower current. Efficiency is claimed to be comparable to that on heavy sections.

The arc is self-adjusting and the equipment includes a reel and feed motor to supply the filler wire to the torch or gun. The feed to the gun is *via* a special cable which also conducts the argon gas to provide the air-excluding shield around the arc and over the weld pool. Automatic adjustment of the arc is governed by the burn-off rate of the wire, which is fed at a constant speed through the gun. If, during the operation, the welder tends to draw the gun away from the work, so lengthening the arc, the burn-off rate is reduced, and the wire feeds to the work and the arc is shortened. If the gun is brought too close to the work the reverse happens. By this arrangement a reasonable latitude is given to the operator without any adverse effect on the weld.

The use of the process is not confined to light alloys, it may also be employed on stainless steel and copper base metals. Certain types of welds between dissimilar metals such as copper and steel can also be successfully effected, employing a bronze wire as the filler material. From the operator viewpoint it is claimed that while the Argonaut process is easy to use in the downhand position for both fillet and butt welding, it is particularly adaptable for the more difficult vertical and overhead welding positions, because, the effects of gravity on the weld metal crossing the arc are hardly noticeable, a feature which allows an operator of average ability to weld in such positions. The difference in technique in the use of the Argonaut process is said to be the necessity to move along the joint more quickly than is customary with ordinary arc welding.

Reclamation of Bolts and Nuts

(*Concluded from page* 595)

bolts, which are then counted by weight, boxed and put into store for issue as required.

The foregoing refers to bolts on the general stock list, but highly stressed bolts, fulfilling especially important functions (such as connecting big-end bolts) are not reclaimed repeatedly but given a restricted working life. An identification mark is made each time they are withdrawn from service and the reclamation section automatically rejects for scrap any bolt carrying three such marks. The threads of these bolts, as well as those cut from bar stock to special requirements, are individually checked to gauge after dressing.

Sorting of Nuts

Nuts are similarly treated, but only one stage of sorting is necessary. As their threads suffer little in service they are not dressed; the nuts are therefore dipped in oil before being packaged, except brass nuts (used in smaller quantities), which are dipped in acid to give them a uniform appearance. An automatic nut sorter is soon to be brought into service.

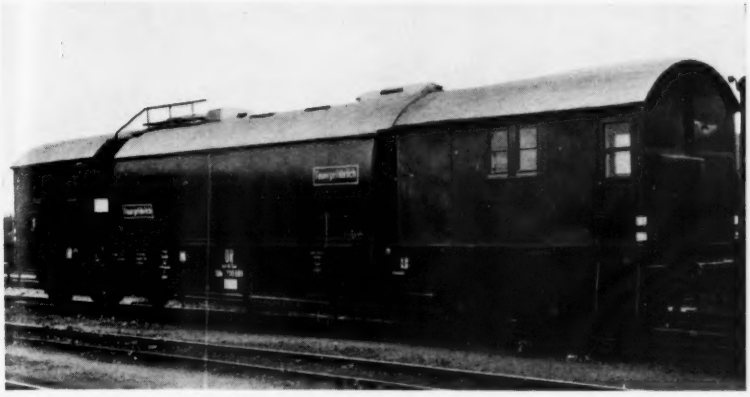
The range of sizes of studs in use necessitates only one stage of sorting, which is done at a bench provided with a vertical battery of open bins. Threads are dressed on demand and studs in special categories individually inspected. In bolts or studs specially cut down and re-threaded, the threaded portion does not possess the same strength as the original rolled thread, this has not, however, proved detrimental.

Where demands for particular parts fall off, the reclamation section suggests more popular forms into which they can be converted, while on occasion attention is drawn to a particular item that regularly shows undue wear at one place, with a view to the design being improved.

The reclamation section will materially assist in the eventual adoption of the unified threads recently agreed between Britain; Canada and the United States. Fastenings with British standard threads, withdrawn after introduction of the unified threads will be cut down and re-threaded to the new standard.

New German Federal Railways Rolling Stock

Three types of wagons for special purposes or traffic



Oil fuel supply wagon

THE substitution of diesel for steam traction on a narrow-gauge branch in the Ludwigshafen district of the German Federal Railways has entailed the construction of separate mobile plants for train heating. Four steam storage tank wagons have been put into service for this purpose. Each wagon when discharged has a capacity of 5·65 cu. m. of water, and steam for 40 heating hours may be stored in it when there is an outside temperature of −32° F.

The tanks are filled within 45 min. with 680 kg. of steam from an ordinary steam engine at one of the branch line termini. The high-pressure steam is reduced to 30-60 lb. per sq. in. by an ordinary pressure reduction valve and then conducted to the train. Three steam tank wagon units are used on the line and a fourth is used overnight for pre-heating the trains stabled at the other terminus. As the drop of pressure of a charged but idle tank amounts to 2·9 lb. per sq. in. an hour the loss is comparatively low.

The cost of such a mobile plant is 40 per cent below that of a boiler. The investment costs will be low if air or gas tanks are available as they may be charged to 148-176 lb. per sq. in. They should, however, be examined before being converted to their future use as they might not meet the requirements of a steam charge because of the additional high temperature conditions.

The increasing use of railbuses and diesel railcars necessitates the provision of more fuelling points. The construction of fuel depots is expensive and it may not be possible to use fixed plant when the starting places or termini are altered by timetable revisions. The construction of mobile filling stations solves this difficulty.

Four of those units are now in service on the Federal Railways. Each is composed of the aluminium cistern dismantled from a tank wagon, mounted on a bogie well wagon. The capacity of the cistern is 32,000 litres. One hundred litres of fuel a minute may be pumped from the tank to the vehicle to be supplied. At each end of the unit there is a cabin, which forms a store for lubricating materials and staff office. In addition there are a spare set of starter batteries, and a battery-charging device. The first four mobile depots are intended to supply the diesel-electric railcars at places where local plants are not yet built or are out of order. Each railcar can be fuelled within half-an-hour.

Motorcar Wagons

Three hundred standard type all-metal high-side open wagons are being converted into 150 double-deck motor car carrier units each 72 ft. 7 in. over headstocks. The German Federal Railways have planned for years to construct such vehicles.

Two open wagons of the latest type are coupled after removal of the ends. On each unit so formed five Volkswagen cars or four cars of larger size may be loaded on to the ground floor; planks placed across the buffers allow the cars to be driven into the second wagon. The centre car, if five are loaded, straddles both wagons, but only the rear wheels are fastened. Steel-supporting bars are mounted on top of the wagon sides to carry a trough-shaped iron upper deck on which

(Left) Cars being loaded by ramp on to upper deck of new motorcar carrier, and (right) two-wagon unit with its full load of ten cars

another four or five cars may be loaded. The gap between the two wagons is bridged by two overlapping trough irons which are fastened on one side only to allow for buffing movements when the train is travelling.

Motorcars may be loaded on the top deck either by crane or assisted by a winch up a ramp fastened to the end of the trough-iron deck and removed after the loading.

To avoid uneconomic empty running of the wagons they may cover a triangular itinerary, as from Fallersleben (Hanover) works with Volkswagen cars to South Germany, and from Rüsselsheim (Main) conveying Opel cars to a North German seaport, thence empty or loaded with goods other than cars back to Fallersleben.

Each unit is considered to be one wagon for tariff purposes. The serial number of one wagon applies to the unit; that of the other is struck out but remains legible. The wagons may be exchanged when necessary, if it is necessary to inspect or repair one of them. The first units have been fitted by Linke-Hoffmann-Busch, G.m.b.H., Salzgitter-Watenstadt.

Steam storage wagon for heating trains

British Railways Royal Trains

The former L.N.E.R. Royal Train now used by the Queen and the Duke of Edinburgh for day journeys

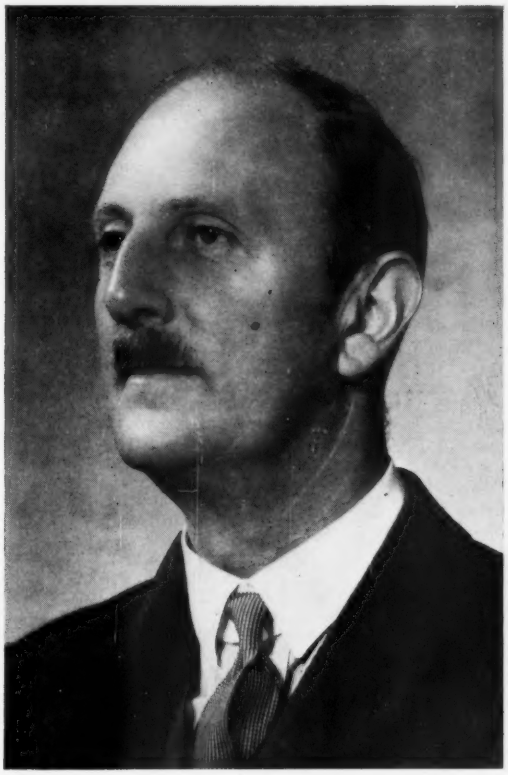
Royal Train built by the former L.M.S.R., and now used by the Queen and the Duke of Edinburgh for day and night journeys

RAILWAY NEWS SECTION

PERSONAL

Colonel R. B. Emerson, C.I.E., O.B.E., formerly Chief Commissioner of Railways, India, who has been appointed Chairman & Chief Executive Officer Designate of the proposed Nigerian Railway Corporation, was born in 1897 and was educated at Bradfield College and at the Royal Military Academy, Woolwich, which he joined from the ranks of the Royal Flying Corps in 1917. He was commissioned in the Royal Engineers in 1918, and served at home and in India and Iraq until 1927. He was then transferred to civil employment with the Great Indian Peninsula Railway, and served in the Engineering, Transportation, and Stores Departments, and in the General Manager's Office. He was appointed to officiate as General Manager of that railway in 1939, but subsequently reverted to military duty, from which he was released to take up the appointment of General Manager of the same railway early in 1944. Colonel Emerson became Chief Commissioner of Railways in May, 1946. He attended the International Railway Congress at Lucerne in 1947, and, in September of the same year, proceeded on retiring leave from the Railway Board. In 1948 Colonel Emerson joined the boards of the associated companies in the Dowsett group, and was appointed Deputy-Chairman of Dowsett Engineering Construction Limited, Dow-Mac (Construction) Limited, Dow-Mac (Plant & Transport) Limited, Dow-Mac (Quarries) Limited, and Dow-Mac (Products) Limited, and Joint Managing Director of Brooke Marine Limited.

Mr. H. G. Follenfant, O.B.E., T.D., B.Sc., M.I.C.E., A.M.Inst.T., who was appointed General Manager, North Borneo Railways, on March 23, was born on December 7, 1908. He entered the service of London Electric Railways in 1929 as a Junior Technical Assistant in the office of the Civil Engineer. From 1932 to 1939 Mr. Follenfant acted as Resident Engineer on a number of new works in connection with the extensions of the London Passenger Transport Board's system. He was embodied for active service at the outbreak of war in 1939 as Captain, R.E., Territorial Army, and proceeded to France with the B.E.F. in 1940 as second in command of a newly-formed Railway Construction Company, R.E., and was evacuated from France in June 1940. In 1941 he was promoted Major in command of the 150th Railway Construction Company, R.E. (originally the L.N.E.R. Platelaying Company, S.R.). In 1942 he was appointed Deputy Assistant Director of Transportation, H.Q., First Army, and was engaged in the planning for the invasion of North Africa. He was subsequently responsible for the control and co-ordination of railway construction and repair in the forward areas in Algeria and Tunisia. He was awarded the M.B.E. In 1943 he was promoted Lt.-Colonel and appointed Assistant Director of Transportation at H.Q. C.M.F. in Italy, landing at Salerno in the early days of the invasion. He joined the staff of the 21st Army Group in 1944 as Assistant Director of Transportation (Way & Works) and was engaged in the railway planning for the invasion of N.W. Europe. He proceeded to France in the earliest days of the landing in Normandy and was engaged in the planning and control of construction and repair of railways for the support of the Armies in the British Zones in France, Belgium, Netherlands and Germany. He was awarded the O.B.E. At the time of demobilisation in 1945, Mr. Follenfant was Deputy Director of Transportation, British Army of the Rhine, in the rank of Colonel. He returned to London Transport in 1945 and acted as New Works Liaison Engineer to co-ordinate the works of construction and equipment for the projection of the L.T.E.'s services from Wood Lane to Ruislip and Liverpool Street to Loughton and for other New Works on the Executive's system. In 1948 he resigned from London Transport. He joined the Colonial Engineering Service and went to Kenya Colony, acting as Resident Engineer in charge of the Mombasa-Mackinnon Road Project and latterly as Public Works Department Divisional Engineer of the Central and Rift Valley Provinces. Mr. Follenfant transferred to British North Borneo and was appointed General Manager, Railways.



Colonel R. B. Emerson
Appointed Chairman & Chief Executive Officer Designate, Nigerian Railway Corporation

Mr. H. G. Follenfant
Appointed General Manager, North Borneo Railways

Mr. F. H. Jaekel

Appointed District Superintendent, Nigerian Railway

Mr. F. Lockwood

London Cartage Manager, Kings Cross, 1943-53

Mr. J. Colclough

Appointed Assistant (Mechanical) to Motive Power Superintendent, Western Region

Mr. F. H. Jaekel, District Locomotive Superintendent, Nigerian Railway, who has been appointed District Superintendent, with effect from August 23, 1952, was born in April, 1913, and was educated privately and at St. Albans School. He was apprenticed to the London, Midland & Scottish Railway at Derby Shops during the term of office of Sir Ernest Lemon as Chief Mechanical Engineer. During this time, he studied at Derby Technical College. After a period with the Research Office he was sent as Improver for Training in the Department of Superintendent of Motive Power at Rugby, Crewe, and Euston. Later he was selected for training by the Chief Officer for Labour & Establishment with the Chief Operating Manager's Department and spent a year with the District Control Office at Chaddesden and the Office of Divisional Superintendent of Operation at Derby. In 1937, he was appointed an Assistant Engineer (Overseas) to the Asiatic Petroleum Company but left, and after a short spell as Locomotive Draughtsman with Coras Iompair Eireann, was appointed Draughtsman & Instructor to the Nigerian Railway on June 1, 1938. He was promoted Assistant District Running Superintendent Grade I on January 14, 1946, and posted to Zaria. On June 27, 1947, he was promoted Senior Assistant Locomotive Superintendent and transferred to Enugu. He became District Locomotive Superintendent on April 1, 1949. As District Superintendent, Zaria, Mr. Jaekel took charge in the Northern District of the duties previously allotted to the District Traffic and District Locomotive Superintendents whose duties have now become merged under the new organisation on the Nigerian Railway. During the 1939-45 war, Mr. Jaekel served with the 3rd West African Field Coy., attaining the rank of Lieutenant before being recalled to the railway in 1942. In March, 1950, he represented the Nigerian Railway at the Colonial Office Conference on Standardisation of Railway Equipment. Mr. Jaekel is a Member of the Institution of Mechanical Engineers, a Member of the Institution of Locomotive Engineers, and an Associate of the Institute of Transport.

Mr. Frank Lockwood, London Cartage Manager, Eastern Region, Kings Cross, who, as recorded in our May 15 issue, retired on April 29, 1953, after 50 years' service, was educated at Watford Grammar School, and entered the service of the Great Northern Railway in the Goods Accounts Office at Kings Cross in 1903, being transferred to the Mineral Agent's Office at Kings Cross in 1908. He was appointed to the District Goods Manager's

Mr. H. F. Smart

District Operating Superintendent, Burntisland, Scottish Region, 1946–53

Mr. N. G. Cadman

Appointed Works Manager, Westinghouse Brake & Signal Co., Ltd.

The late Mr. C. I. Stevens

Joint Managing Director, Vacuum Brake Co. Ltd., 1947-53

Office, Nottingham, in 1912. In 1915, Mr. Lockwood was appointed to the London Cartage Committee at Kings Cross where he remained until 1925, when he was appointed Chief Clerk in the Horse Superintendent's Department at Leeds. He became Assistant to the London Cartage Manager, Kings Cross, in 1928, and, in 1930, was appointed Chief Clerk to the Cartage Manager, Southern Area, L.N.E.R. Mr. Lockwood was Acting Assistant Cartage Manager, Southern Area, L.N.E.R., from 1940 until 1943, when he was appointed London Cartage Manager, L.N.E.R., and continued in this appointment after 1948. He was Chairman of the Inter-Regional Committee for Cross Town Cartage of Parcels & Goods Traffic, Member of the Sub-Committee for the Co-ordination of Railway Facilities in London, Member of the London Council & Awards Committee of the Royal Society for the Prevention of Accidents. As London Cartage Manager, Mr. Lockwood was responsible for 750 motor vehicles at 30 stations involving the collection and delivery of one million tons of freight traffic and fifteen million parcels annually. At Bishopsgate Goods Depot on April 30, Mr. H. Forster, Goods Agent, presented Mr. Lockwood with two wing chairs on behalf of the cartage staff at the depot. At Kings Cross, on May 1, Mr. E. J. Ward, Assistant to London Cartage Manager, presented Mr. Lockwood with a gentleman's fitted wardrobe on behalf of his own staff, Stationmasters, Goods Agents and Parcels Agents in the London Area, Eastern Region. At Liverpool Street on May 6, Mr. C. K. Bird, Chief Regional Officer, Eastern Region, presented Mr. Lockwood with a set of bowling woods from his fellow Officers in the Eastern Region.

Mr. J. Colclough, who, as recorded in our April 24 issue, has been appointed Assistant (Mechanical) to the Motive Power Superintendent, Western Region, British Railways, entered the service of the former Cambrian Railway at Oswestry in 1916 as an Apprentice to Fitting & Turning. Transferring to the Drawing Office of the Great Western Railway at Swindon Works in 1924, he remained at Swindon until his appointment as Assistant to the Divisional Locomotive Superintendent at Worcester in 1939. Two years later Mr. Colclough moved to Newport (Mon.) in a similar capacity where, in 1945, he became Assistant Divisional Locomotive Superintendent. He returned to Swindon in 1950 as Staff Assistant to the Motive Power Superintendent, which post he now relinquishes upon taking up his new appointment. Mr. Colclough holds the Degree of B.Sc. (Tech.) and is an Associate Member of the Institution of Mechanical Engineers and a Member of the Institution of Locomotive Engineers.

Mr. H. F. Smart, M.B.E., District Operating Superintendent, Burntisland, Scottish Region, British Railways, retired on May 3, having completed 52½ years' railway service. Mr. Smart, who is a native of Dundee, commenced his railway career with the North British Railway Company in that town in November, 1900, as a boy messenger, but was promoted to a clerical post in the office of the District Traffic Superintendent, Dundee, in the following year. Four years later Mr. Smart transferred to Tay Bridge Goods Station in order to widen his experience, and after gaining a thorough knowledge of station working and train operating he joined the staff of the Chief Goods Manager, Glasgow, as a Relief Clerk in 1913, on which work he was engaged for the next six years. 1919 brought employment on Freight Train Working and out of gauge load traffics, until in 1926 he was appointed Relief Stationmaster attached to the office of the District Superintendent, Glasgow. Two years later Mr. Smart became Chief Clerk in the District Control Office, Coatbridge, but in 1929 returned to the office of the District Superintendent, Glasgow, where he became Chief Clerk in 1938. In December, 1941, he was promoted Assistant District Superintendent, Burntisland, and in the following year Assistant District Superintendent, Glasgow. In 1946 Mr. Smart was appointed District Superintendent, Burntisland, the position he now vacates.

Mr. N. G. Cadman, M.I.Mech.E., M.I.Loco.E., Deputy Works Manager, Westinghouse Brake & Signal Co. Ltd., who has been appointed Works Manager as from May 1, 1953, was educated at Skinner's School, Tunbridge Wells. He joined the Brighton Locomotive Works of the London, Brighton & South Coast Railway as a fitter apprentice, and was later awarded a pupilship by the railway. He entered the Westinghouse organisation in 1926 as a draughtsman, and in 1929 joined the Brake Engineering Department, where for some years he was in charge of all experimental brake work, including the organisation in conjunction with railway engineers of the high speed tests in 1938 on the London & North Eastern Railway and also on the Southern Railway. He was appointed Chief Brake Engineer in 1947, and became Deputy Works Manager (Engineering) in 1950. Mr. Cadman is a Chartered Automobile Engineer and a Director of Hewins Limited.

We regret to record the death at Manchester on May 17, at the age of 60, of Mr. Claude Ingram Stevens, Joint Managing Director of the Vacuum Brake Co. Ltd. Mr. Stevens joined the Vacuum Brake Co. in November, 1910, became Assistant Secretary in 1923, joined the Board of Directors in 1945 and was appointed Joint Managing Director in 1947. Apart from his associations with this company he was also directly connected with Gresham & Craven, Manchester, during the whole of this period. After service in the 1914-18 war, part of which time was spent as prisoner of war in Holland, where he acquired considerable mastery over Continental languages, Mr. Stevens travelled extensively, and to the time of his death was actively engaged in the promotion and development of vacuum brakes. A considerable number of patents relating thereto being taken out under his name. In 1946 he was chosen as a member of the Railway Brakes & Signals Industrial and Export Group working partly to visit Germany under the auspices of the Ministry with a view to obtaining for the industry information regarding the brake and signal developments of German firms during the war period. His funeral took place on May 20 at Stockport Crematorium.

Senior representatives of the firms of consulting engineers who will design the Auckland underground railway and the electrification of Auckland suburban railway system are to arrive in New Zealand during June. They are Mr. V. A. M. Robertson, a member of the London firm of Sir William Halcrow & Partners, who will investigate and design the underground railway section between Beach Road and the Town Hall. Mr. E. L. E. Wheatcroft, a partner of Messrs. Merz & McLellan, and Mr. H. C. Barton, Chief Traction Engineer of the same firm, which will design the electrification of the railway system.

Mr. H. Capstick, Assistant Divisional Operating Superintendent, Derby, London Midland Region, British Railways, is to retire on June 1, 1953.

Mr. R. T. Phillips, Deputy Chief Representative, British Railways London Commercial Service, 13, Aldersgate Street, E.C.1, retired from the service on May 9.

Mr. N. L. Goodchild, Raw Materials Officer, British Iron & Steel Federation, has resigned.

Mr. C. P. Storr, M.I.Mech.E., M.I.E.E., has been appointed Power Systems Engineer of Metropolitan-Vickers Electrical Co. Ltd.

Mr. Arthur Wood has been appointed a Director of Henry Meadows Limited, Wolverhampton, and of H. Widdop & Co. Ltd., Keighley.

Mr. K. H. Platt, M.B.E., B.Sc., M.I.Mech.E., has been appointed Assistant Secretary of the Institution of Mechanical Engineers as from May 1.

Mr. Cyril H. Johnson, Foreign Exchange Accountant of Thos. Cook & Son, Limited, has been elected Mayor of Malden and Coombe, Surrey.

Mr. J. T. Sharples, B.Sc.Tech., A.M.I.E.E., formerly Engineer-in-Charge, Heating Element Department, Metropolitan-Vickers Electrical Co. Ltd., has been appointed District Engineer and Manager (Northern Counties), Barlow-Whitney Limited. Mr. Sharples will operate from 32, Deansgate, Manchester, 3.

The following elections for the year 1953-4 have been announced by the Institute of Transport:—

Vice-Presidents:

Mr. James Amos, O.B.E., Chairman, Scottish Omnibuses, Limited.

Mr. R. W. Birch, Chairman, Potteries Motor Traction Co. Ltd.

Mr. C. K. Bird, Chief Regional Officer, Eastern Region, British Railways.

Mr. Peter G. Masefield, Chief Executive, British European Airways.

Sir Gilmour Jenkins, K.C.B., K.B.E., M.C., Secretary, Ministry of Transport.

Mr. P. J. R. Tapp, C.B.E., M.C., Chairman, Meat Transport Organisation Limited, Part-time Member of the Road Haulage Executive.

Hon. Treasurer:

Mr. S. B. Taylor, Chief Secretary, British Transport Commission.

Hon. Librarian:

Mr. H. H. Crow, Chairman & Managing Director, Crow Carrying Co. Ltd.

The following have been appointed to be directors of Transport Unit Finance, the company formed jointly by United Dominions Trust and the Road Haulage Association to give financial assistance to purchasers of denationalised road transport:—

Mr. J. Gibson Jarvie, Chairman of United Dominions Trust, Mr. D. Carmichael and Mr. H. D. Oliver (both of United Dominions Trust), Mr. J. Barrie, Mr. C. W. H. Sparrow and Mr. J. S. F. Pollitzer (all of the Road Haulage Association).

Beyer, Peacock & Co. Ltd.

Record group order books;
Mr. Harold Wilmot on outlook

The annual general meeting of Beyer, Peacock & Co. Ltd., was held on May 20 at the Dorchester Hotel, Park Lane, London, W., Mr. Harold Wilmot, C.B.E., Chairman and Managing Director, presiding.

The Secretary, Mr. Leslie Thornley Dawes, F.C.W.A., read the notice convening the meeting and the report of the auditors.

The following is the Chairman's review, which had been circulated with the report and accounts for the year ended December 31, 1952:—

The consolidated balance-sheet shows a liquid balance of £1,191,676 as compared with £1,099,171 at the end of the previous year. Revenue reserves, which at December 31, 1951, were £1,045,239, have increased to £1,176,322.

The group profit and loss account for 1952 shows a profit of £448,364 before tax. This is a reduction of £56,374 gross as compared with the previous year. It will be remembered that in reviewing the accounts for 1951 it was stated that steel supplies in the first quarter of 1952 were disappointing but had subsequently improved. This improvement was maintained during the year and rationing of steel has now ended. It is hoped that the disorganisation of supplies which caused us so much trouble and concern a year ago will not recur.

Current Year's Profit Budget

In view of the disappointing conditions in the early months of 1952 the results for the year may be regarded as satisfactory. Provided there is no deterioration of essential conditions it is reasonable to expect better results for 1953, and, indeed, the profit budget for the current year indicates a modest improvement. It is gratifying again to report group order books at record high levels. The main factories of the company are also fortunate in that direct and indirect interests in defence products are not of a nature or extent likely to cause serious concern. Such fluctuations of production load as may be dictated by departmental policy can be neutralised by recourse to commercial work.

In the summer of 1952 all the shares of Fyna Industries Limited were purchased by our subsidiary company, Richard Garrett Engineering Works Limited, out of its own liquid resources. Fyna Industries Limited is well known for its range of hammer mills (agricultural and industrial) and protein extractors. It is the opinion of your directors that we have secured an eminently suitable addition to the growing range of products of our group. The operations of Denings of Chard Limited, the assets of which were purchased from receivership at the end of 1951, were hampered in the early part of 1952 by steel rationing and also by the necessity for the rehabilitation of the name of the company with local sentiment, with suppliers of materials, and with buyers. In all the circumstances it is satisfactory to record that the reorganisation and rehabilitation of the company were accomplished in 1952 without loss. Production at Chard is being stepped up as fast as balanced supplies can be procured. Progress so far in 1953 may be regarded as satisfactory.

During the summer of 1952 a further small factory (Anchor Works) at Deal was acquired. It is now being tooled for special production and full output should be achieved by the end of this year. Our associated company, Metropolitan-Vickers—Beyer, Peacock Limited, operated throughout 1952 mainly on electric locomotives for Brazil, and made a reasonable profit which has been retained in the accounts of that company, there being no dividend declaration as yet.

Proposed Increase of Capital

You will have noticed that it is the intention of the board to seek your approval of a resolution to increase the authorised capital of the company from its present level of £1,300,000 to £2,000,000. The necessity for ample liquid resources is obvious. During recent years considerable expansion has been undertaken. The cost of consolidation and development is not yet at an end, and further expansion may well be found desirable. Some new machinery is needed to improve productive processes at Leiston and Chard, as well as at the locomotive factory at Gorton. Stocks of materials and work in progress must be carried at prices which are much in excess, volume for volume, of what they were some years ago. An increase of the authorised capital in terms of the resolution will enable the board to take such steps as may be considered necessary to increase the issued capital of the company should occasion so require.

The report and accounts were adopted and the proposed final dividend of 3½ per cent, plus a bonus of 4½ per cent, making 12 per cent, less tax, for the year, were approved.

The retiring director, Captain Hugh Vivian, M.I.Mech.E., was re-elected; the remuneration of the auditors, Messrs. Price, Waterhouse & Company, was arranged; and the resolution increasing the capital having been approved, the proceedings terminated.

Improving Hotels Executive Properties and Facilities

Important hotel and refreshment room works; extension of cafeteria service

As part of a programme of modernising its hotels and refreshment rooms to cater for the tourist demands of Coronation Year, the Hotels Executive has completed at a cost of some £250,000 the restoration and redecoration of the Charing Cross Hotel, London, which was built in 1865. When the Executive took over this hotel in 1948, the two topmost floors were in ruins from bombing and there was much damage on lower floors. Central heating and private bathrooms were lacking. In just over a year, the rebuilding of the upper floors and installation of central heating throughout and additional bathrooms have been completed. Over 90 modern bedrooms have been provided, making a total of 250, all already let for the Coronation period. The co-operation of guests and staff has made it possible to keep the hotel open during the rebuilding. As renovated, this hotel will take its place as one of the leading West End hotels.

Other hotels owned by the British Transport Commission, including those at Liverpool Street, Paddington, Perth, Edinburgh, Glasgow, Birmingham, Newcastle, Bradford, York and St. Ives have been extensively improved and renovated at a cost of nearly £200,000 in all. For example, visitors to Scotland will soon find the well-known Pompadour Restaurant at the Caledonian Hotel, Edinburgh, restored and a new American Bar installed. The Malmaison Restaurant at Glasgow has been renovated. The Station Hotel at Inverness is to be completely modernised. In all, at the majority of the Executive's 36 hotels refurnishing and redecoration will be completed and plant and equipment renewed before the summer season begins. Hotel bookings to date are well above average.

Considerable progress has been made in the modernisation of decor and equipment in refreshment rooms and in the conversion of station dining rooms to cafeterias at a total cost of some £150,000. The new cafeterias are extremely popular with passengers and have brought refreshments within the reach of an increasing number. More packed meals have been provided and some 400,000 of them were sold in 1952. In 1952 the refreshment room division served 75,000,000 cups of tea, 8,000,000 cups of coffee, and served between 51,000,000 and 52,000,000 meals, including snacks.

On the trains, to meet changing needs of the travelling public, more buffet car services have been introduced. This summer, 303 restaurant car services and 325 buffet car services will be running every weekday.

The cafeteria car has been an interesting and worth-while innovation, extending the principle of self-service to the trains. The popularity of this type of vehicle has led to a decision to build a number of new cars. A further eight went into service last month, and sixteen are expected to be running when the summer timetable is introduced. Altogether, the Executive is responsible for serving between 11,000,000 and 12,000,000 meals a year on trains.

L.M.R. Canadian Pacific Boat Trains Named.—The Canadian Pacific boat train which leaves Euston for Liverpool every Tuesday, on May 12 carried for the first time the nameboards "Empress Voyager." The regular Friday train from Liverpool to Euston now carries a similar title.

Loss on Isle of Wight Railways.—At a hearing last week in Newport, Isle of Wight, of objections to the Railway Executive's proposal to close this year the Brading-Bembridge, Newport-Freshwater and Newport-Sandown lines and all stations between Ryde St. John's Road and Newport, except Haven Street, Mr. C. P. Hopkins, Chief Regional Officer, Southern Region, said that the island system lost £271,000 annually. Closing the three branches mentioned would save £90,000 a year.

Earlestown Works Acquisition Centenary

Commemorating the taking over on lease by the L.N.W.R. of the former Viaduct Foundry

Celebrations were held at Earlestown, Lancs., last week to mark the centenary of the taking over on lease by the former London & North Western Railway on March 1, 1853, of the Viaduct Foundry, Earlestown, of Jones & Potts, the premises being acquired for the Wagon Department of the L.N.W.R. Northern Division. On May 11, 1860, the property was purchased outright for £15,000.

Tour of Inspection

The centenary celebrations of May 15 began with a tour of the works, and an inspection of historical relics. Among the latter was a print of the locomotive *Black Diamond*, built at the works by Jones, Turner & Evans, their original owner; and a book of drawings belonging to J. Harwood, an Under-Manager at the works, under whom, on March 8, 1878, a low-side open wagon was built at Earlestown in 1 hr. 41 min.

During their tour, the visitors saw work in progress in the two wagon repair shops organised on the progressive system, one of which, where these methods were introduced in 1931, was among the first of its kind. Approximately 100 wood-frame open wagons are dealt with weekly here, while the second shop repairs each week some 70 covered vehicles with wood or steel frames. Two progressive layouts are provided in the covered vehicle shop, giving four roads for the heavy repair stages, as in both shops the principle has been followed of dividing the line after the first operations. The progressive system is also followed in the container shop, which has an output capacity of 20-25 large covered containers weekly.

The block of shops forming part of the original works purchased from Jones & Potts includes a smithy which has been used for this purpose throughout the history of the establishment. It is of particular interest that in one of these old buildings, now the flash butt welding shop, an electronic resistance heater has been installed for preparing cable half links for bending, which has been developed specially for this purpose and is the only one of its type. In this portion of the works also recent excavations have disclosed a number of stone sleepers, some of them with chairs, which appear to have been part of the old Liverpool & Manchester Railway permanent way and confirm traditions that L. & M. locomotives—including perhaps the *Rocket* itself—were repaired at the old Viaduct Foundry.

In addition to its main repair, construction and maintenance operations Earlestown today undertakes ancillary functions such as the weaving of lubricating pads for axleboxes and the manufacture of fire lighters for locomotive sheds. Both these activities began in 1946. Fire lighter output amounts to 650 gross a week, meeting the needs of all locomotive sheds in the London Midland and Scottish Regions while the average output of lubricating pads is 2,000 a week. In this shop all female labour is used.

At this stage of the tour the visitors saw an exhibition of stock which included the Standard Pacific locomotive No. 70001 *Lord Hurcomb*, main line coaches, a variety of special purpose wagons, and a number of containers.

The concluding stages of the tour took the visitors through the all-steel wagon and goods brake repair shop, where the work is now increasing rapidly, and the steel frame wagon repair shop. Both shops are organised on progressive lines. The spring shop plant was also inspected. Here again progressive principles are used and the plant is capable of producing 500 new springs a week in addition to repairing 1,000 by hand.

Centenary Luncheon

A centenary luncheon was held at the Pied Bull Hotel, Newton-le-Willows, after the visit to the works.

Mr. H. E. Kemp, Works Manager, Earlestown, welcomed the guests on behalf of the Viaduct Works staff. They all regretted that Mr. J. W. Watkins, Chief Regional Officer, L.M.R., was unable to be with them; Mr. Watkins was represented on this occasion by Mr. G. J. Harris, Regional Accountant. Referring to the presence of Mr. H. Randle, Carriage & Wagon Engineer, Mr. Kemp said that this year and next the works had larger orders for non-coaching stock passenger vehicles than for many years.

The factory dated originally from 1833, being founded in that year as the Viaduct Locomotive Works by Mr. Roger Evans, and having produced 350 locomotives in its early days. It went back to 1853 as a L.N.W.R. factory. Its prevailing spirit could be described as "120 years young," and they felt they could tackle any jobs that might be given them today with the background of the prestige of 120 years' service.

Mrs. C. Carr, Chairman of Newton-le-Willows Council, who replied for the guests, said they always had three or four of the works employees on the Council. She hoped the centenary heralded a new era for the works and the people who worked in them.

Mr. J. C. Noon, Chairman of the staff side of the Works Committee, proposing "The London Midland Region," paid tribute to the pioneers who by their skill and craftsmanship had laid the foundations at Earlestown that had stood the test of time and competition. They who followed had striven to maintain their ideals, and he thought visitors would have seen that the same spirit of endeavour prevailed today. Mr. Noon expressed sincere thanks to Mr. Kemp for his organisation of the centenary celebrations. The works had in him a man who by his character and example was well fitted to guide them in maintaining their prestige.

Mr. G. J. Harris, Regional Accountant, said he was deputising for the Chief Regional Officer as one of the ex-L.N.W.R. representatives at Euston. He had been impressed by the enthusiasm of all in the railway service for their job. They were not sitting back, for they knew their job could be improved, and they were all quite determined to get back to where they were before the war.

Relations between staff and management at Earlestown had always been particularly good, for which the management was extremely grateful. Mr. Harris read a passage from the December, 1901, issue of our associated publication, *The Railway Magazine*, which quoted the establishment of the Earlestown Mechanics' Institute as an example of the mindfulness of the directors of the L.N.W.R. for the material and moral welfare of their servants, the institute having been erected by the company at its own expense as a place where workmen and their families could attend lectures on scientific and general subjects free of charge. Here they had a reading room, a library of upwards of 5,000 volumes, and a cricket and recreation ground. In those days, said Mr. Harris, wagons cost £40 or £50 each. Today they had to bear the increased costs of coal, electricity, and everything else, and it was not easy to pass them on to their users.

In conclusion Mr. Harris referred to the success of the Earlestown works in boxing and in first aid competitions, the women's ambulance team of the accountants' office having been the winner of the L.M.R. finals and being about to compete in the inter-Regional finals.

Mr. F. Lee, Member of Parliament for Newton-le-Willows, said the part of the British railway system in the story of the British people had been pre-eminent. Transport had a vital part to play in ensuring that capital goods got to the undeveloped parts of the world where they were required, and in solving the problems involved in moving vast, indivisible loads. This would make a real contribution to future peace and prosperity. He believed the future of the British Railways system was Britain's future.

Among those attending the luncheon were:—

Earlestown Carriage & Wagon Works representatives: Messrs. H. E. Kemp, Works Manager; W. H. Sykes, Assistant Works Manager; F. T. Appleton, Production Engineer; G. B. Tarbuck, Plant Engineer; H. J. Eyre, Chief Finished Work Inspector; W. E. Kynaston, Accountant; R. W. Mayhew, Chief Clerk; G. L. Phillips, L. F. Rudlinton, W. Harrison, J. Walker, J. Green, J. Tomkinson, F. Houghton, H. Peach, J. T. Green, E. O'Leary, J. C. Byrne, N. R. Slinn, C. H. Quinby, Miss D. Bennett; Messrs. L. Perkins, F. E. Lewis, Miss E. Stones; Mr. W. J. Spencer; Miss S. Brockbank; Messrs. F. A. Soden, J. Hedley; Miss D. Newns; Messrs. J. L. Porter, H. Bradshaw, W. T. Wells, W. Bloor, J. C. Noon.

Other L.M.R. representatives: Messrs. G. J. Harris, Regional Accountant, representing Mr. J. W. Watkins, Chief Regional Officer; H. Randle, Carriage & Wagon Engineer; George Dow, Public Relations & Publicity Officer; E. Stanley, Assistant Carriage & Wagon Engineer; A. E. Bates, Works Superintendent, Derby; T. C. Byrom, District Passenger Supt., Lime Street, Liverpool; P. J. Fisher, District Operating Supt., Lime Street, Liverpool; D. S. Inman, District Goods Supt., Liverpool; G. F. Kent, District Engineer, Liverpool; Dr. Waddell, Medical Officer, Manchester; Messrs. R. Russell, District Outdoor Machinery Supt., Liverpool; C. W. Brown, District Public Relations & Publicity Representative, Liverpool; J. Lever, District Estate Agent.

Guests: Mrs. C. Carr, Chairman, Newton-le-Willows U.D.C.; Mr. L. J. Shields, Clerk to the Council, Newton-le-Willows; Mr. P. Hardman, Librarian, Newton-le-Willows Public Library; Inspector Higginson, Inspector of Police, Earlestown; Mr. W. C. Jones, Principal, Newton-le-Willows Technical School; Mr. F. Lee, M.P., Newton-le-Willows.

SIDE CLEARANCE OF NEW ROLLING STOCK.—At an inquest at Sutton, Surrey, British Railway officials agreed that passengers might be injured leaning out of new, wider rolling stock which reduced side clearance at some bridges to less than 12 in. The jury recommended consideration of means to prevent such accidents.

British Railways £4,000,000 Improvement Schemes

Widening and motive power depot projects

British Railways have been authorised by the British Transport Commission to proceed with three major improvement schemes, at a total cost of nearly £4,000,000, which will enable passenger and freight services to be accelerated on several important main routes. These projects are the widening of the East Coast main line between New Barnet and Potters Bar (Eastern Region), the modernisation of Crewe (North) Motive Power Depot (L.M.R.), and the provision of a large new motive power depot on the N.E. Region at Thornaby (near Middlesbrough), mainly for handling the rapidly growing industrial traffics in the North East.

The New Barnet - Potters Bar scheme, costing £1¾ million, will provide two additional tracks between Greenwood Signalbox (north of New Barnet Station) and Potters Bar Station, where it will link up with the widening and station reconstruction scheme at Potters Bar authorised in 1952 at an estimated cost of just over £500,000 (see our March 28, 1952, issue). The proposal includes new tunnels at Hadley South, Hadley North, and Potters Bar; reconstruction of Hadley Wood Station; the abolition of Greenwood Signalbox and the extension of the colour-light signalling and track-circuiting installations. About 1,830 yd. of new tunnelling will be required, and 380,000 cu. yd. of excavation.

The widening will provide four or more tracks continuously throughout the London suburban area as far as Welwyn Viaduct; will enable more trains to be run, help towards better punctuality, and will also cater for the planned development of Hertfordshire, which is expected almost to double the population served by the stations from Hadley Wood to Royston. Work is expected to begin in the early spring of 1954 on the scheme, which will take five years to complete.

Motive Power Depots

Nearly £1,000,000 is to be spent in modernising Crewe North Motive Power Depot. The tracks in the old locomotive sheds, which date back nearly 100 years, are so close together that it is difficult for examination and maintenance to be carried out efficiently on large, modern locomotives and the works to be carried out are designed to overcome this difficulty. About 350 tons of coal are used by engines every day at Crewe North. A reinforced concrete coaling plant of 200 tons capacity, a new mechanical ash-lifting plant, ash pits, 70-ft. turntable and sand drier have already been provided, but modern buildings are now to be erected on a site to the south of Crewe Station for the periodical examination and repair of locomotives; there will be accommodation for 16 steam locomotives and two diesel shunting engines to be dealt with simultaneously. A locomotive shed of the roundhouse type with 32 roads will be built around the new 70-ft. turntable, and another similar roundhouse, also with 70-ft. turntable, will be provided; a second coaling and ash plant will also be installed together with office and staff accommodation, including mess-room and washing facilities. Certain track alterations will be necessary.

Locomotive inspection and repair pits will be provided with fluorescent lighting to enable the work to be carried out under the best possible conditions. The new round houses will provide ample space for 58 locomotives to be berthed at once.

A £1,000,000 motive power depot is to be built at Thornaby, near Middlesbrough, to cope with heavy additional traffic from the expansion of the iron, steel and chemical industries on Tees-side. Work on this project will start at once. The new depot will replace the 70-year-old depots at Middlesbrough and Newport, and will be situated between the Newport Marshalling Yards and the main Thornaby and Middlesbrough Road. When in full use it will employ a staff of over 1,000 and will have an allocation of 220 locomotives.

The new depot will have two roundhouses (later to be increased to three if necessary) each with a 70-ft. turntable. There will also be a separate machine shop in which locomotive repairs, other than major repairs, will be carried out, and a shop especially for the maintenance and servicing of the diesel-electric shunting locomotives which are to be allocated to work on Tees-side.

A coaling plant of 350 tons storage capacity is to be built, together with standby facilities for coaling locomotives during any period when the coaling plant may be out of use for maintenance or overhaul. Modern wet ashpits will be provided, and the locomotive inspection pits will be of the latest construction, with special lighting. Office accommodation, canteen facilities, staff amenities, and stores of the latest type will be provided.

The project involves alterations to existing rail connections to the Newport Marshalling Yards. An addition reception line will be provided at No. 2 Up Marshalling Yard to improve the working of that yard. Colour-light signalling and track circuits will be installed between Thornaby East and Newport East signalboxes.

Parliamentary Notes

Ministries of Civil Aviation and Transport

Mr. W. R. D. Perkins (Stroud—C.) has tabled the following motion for discussion at an early date: "That, before any action is taken to amalgamate the Ministry of Civil Aviation and the Ministry of Transport, a select committee be appointed to advise Her Majesty's Government on the advisability of this step."

Lords' Amendments to Steel Bill Agreed in Commons

After a brief debate, the House of Lords amendments to the Iron & Steel Bill were agreed to by the House of Commons on May 13.

The Royal Assent to the Iron and Steel Act was signified by a Royal Commission in the House of Lords on May 14.

Railway Works

Mr. Ellis Smith (Stoke-on-Trent, South —Lab.) on May 18 asked the Minister of Transport if he would make a full statement on capital development approved for railway improvement, giving details of major schemes and areas involved and priorities already agreed for construction work.

Mr. Alan Lennox-Boyd (Minister of Transport) replied that the Commission had furnished him with a list of the works, each estimated to cost more than £100,000, now in progress and so far authorised for 1954 and 1955. As it was very long he would with permission, circulate it.

Representatives on Regional Boards

Mr. J. A. Sparks (Acton—Lab.) on May 18 asked the Minister of Transport if he would ensure that persons experienced in the organisation of workers employed in the railway transport industry would be included in the personnel of any regional boards or committees set up in place of the Railway Executive.

Mr. Alan Lennox-Boyd (Minister of Transport) replied that until he had received and considered the scheme to be submitted to him by the British Transport Commission he could make no statement as to the form it might take, but he could assure Mr. Sparks that that consideration would be very much in his mind.

Mr. Sparks asked if the Minister could give an assurance that this matter was left to the discretion of the British Transport Commission itself, and that he would not give it any direction that it must not include the type of person mentioned in his question. Mr. Lennox-Boyd said that he would never give any such direction.

Mr. Lennox-Boyd said that the Act of Parliament provided the powers under which the Commission could set up or not set up various boards or committees, and he did not think that he could add to that, except to say that he would certainly not tell it that it should not include trade unionists on any committees it set up.

Mr. A. J. Champion (Derbyshire, South East—Lab.) inquired if this would be one of the questions which they would be discussing when the Minister presented the White Paper to the House, when, perhaps, members might have to make some suitable amendments.

Mr. Lennox-Boyd replied affirmatively.

Road Haulage Compensation

Mr. Gerald Nabarro (Kidderminster—Con.) on May 18 asked the Minister of Transport, what sum of money in respect of compensation for road haulage assets acquired under the Transport Act, 1947, remained outstanding for payment to former operators; and what financial arrangements he proposed to make to enable these creditors to employ the sums owing to them for acquisition of road haulage sold by the Road Haulage Disposal Board under Section 3 of the Transport Act, 1953.

Mr. Alan Lennox-Boyd wrote in reply that compensation ascertained and outstanding at April 30, 1953, amounted to £3·2 millions. The amount of the Commission's outstanding liability could not yet be determined. In some cases determination by the Transport Arbitration Tribunal of the amount payable as required; in others final agreement between the Commission and the transferor has yet to be reached. There is no statutory provision which would enable the Commission to offset sums payable for compensation, which for the most part is payable in Transport Stock, against consideration for the sale of transport units or shares under the Transport Act, 1953.

Road Haulage Disposals Board

The Minister of Transport was asked in the House of Commons on May 14 by Mr. Ernest Davies (Enfield, East—Lab.) which organisations he had invited to submit nominations for appointments to the Road Haulage Disposals Board; in

which cases names had been provided; and in which the invitation declined.

Mr. Lennox-Boyd replied that the following bodies were invited to submit names for consideration: the British Transport Commission; the Federation of British Industries; the National Union of Manufacturers; the Association of British Chambers of Commerce; the Road Haulage Association; the Traders Road Transport Association; and the Traders Co-ordinating Committee on Transport. Each organisation had submitted a name or names, except the Traders Co-ordinating Committee which expected to do so shortly.

Mr. James Callaghan (Cardiff, South East—Lab.) asked if the Minister of Transport would announce the names of the members of the Road Haulage Disposal Board, with their interests, direct or indirect, in the transport industry and the remuneration they were to receive by way of salaries, fees, allowances and expenses in respect of their membership of the board.

Mr. Lennox-Boyd replied that he was not yet in a position to give that information. Answering a further question from Mr. Callaghan, he said that he did not regard the formation of a company between the Road Haulage Association and the United Dominions Trust, or any other financial house that cared to make the same arrangement, as precluding a member of the Road Haulage Association from serving on this body. He understood that the Road Haulage Association, though it be recouped for expenses consequent on the formation of the company, had no financial interest in the proposed company.

Mr. J. A. Sparks (Acton—Lab.) on May 18 asked the Minister of Transport if he would disqualify for membership of the Road Haulage Disposals Board persons interested, financially or otherwise, in acquiring the vehicles to be disposed of.

Mr. Lennox-Boyd replied that the matter was adequately dealt with in Section 2 (7) of the Transport Act, 1953.

Staff & Labour Matters

Railway Shopmen: Rates of Pay for Apprentices and Females

When agreement was reached last November by the Railway Shopmen's National Council to an increase of 7s. a week for adult male railway workshop staff, the position of apprentices, boys, and youths and of female workshop staff was deferred for further consideration. Agreement has now been reached and the increases shown in the accompanying table will apply with retrospective effect to November 2, 1952.

—	Age	Increase per week
		s. d.
Apprentices, boys and youths	15	4 0
	16	4 0
	17	4 0
	18	6 0
	19	10 0
	20	12 0
Junior females... ...	15	3 0
	16	3 0
	17	3 0
	18	8 0
	19	10 0
	20	12 0
Adult females—		
Labourer		10 0
Group 5		10 0
,, 4		10 0
,, 3		10 0
,, 2		10 0
,, 1		10 0

Passenger Traffic Grade Conference

At the national conference of the Passenger Traffic Grades at Hastings on May 16 the President of the N.U.R., Mr. H. W. Franklin, referred to the necessity for the unions and the Government to arrive at an understanding to peg prices and wages. He said that obviously a claim for increased wages would have to be submitted in the near future, but he considered that the unions would need to think afresh on the question of prices and wages. He favoured the view that the trade union movement and the Government should agree on the establishment of a wages pool, by which all wages would come from national resources, and wages and prices remain stable for at least a year.

Contracts & Tenders

British Railways, Eastern Region, have placed the following contracts:—

Johnson Ireton Limited, London, S.W.17: Renewal of awning to up side platform at Newark Castle Station.

Samuel Butler & Co. Ltd., Stanningley: Repairs to connecting bridge to pontoon at New Holland.

Tersons Limited, London, N.3: Maintenance of permanent way, Peterborough District.

British Railways, North Eastern Region, have placed the following contracts:—

Edwin Danks & Co. (Oldbury) Ltd., Oldbury: Supply and installation of new creosoting cylinder and fittings at West Hartlepool creosoting depot.

Arundel (Contractors) Limited, Bradford: Cleaning and painting buildings, bridges, signalboxes, etc., at Queen Street, York, and part of York Main Goods and York Goods Branches.

British Railways, London Midland Region, have placed the following contracts:—

Permanite Limited, London, E.3: Re-cladding of a portion of No. 3 span roof at Manchester London Road Station.

Samuel Butler & Co. Ltd., Stanningley: Repairs to the roof steelwork at Rugby Midland Station.

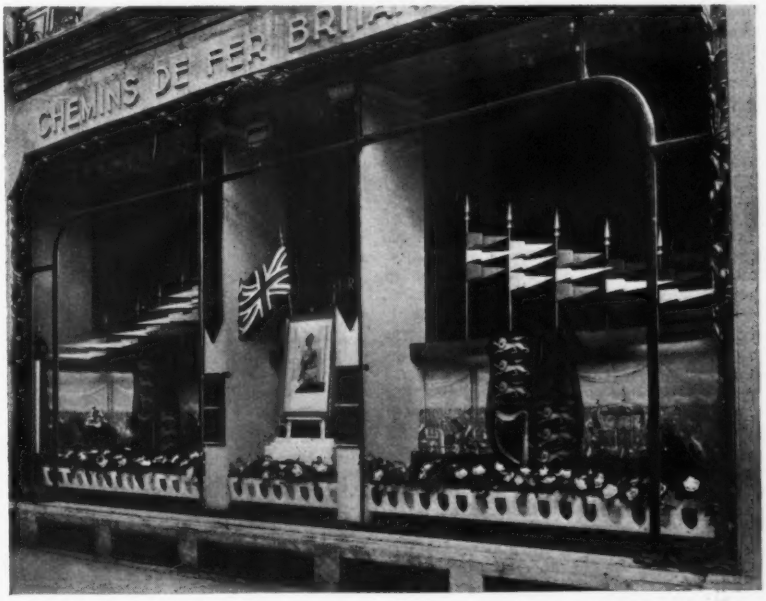
Norris Warming Co. Ltd., Salford: Renewal of hot water service for cleaning purposes at Longsight Carriage Shed.

The Demolition & Construction Co. Ltd.: Demolition of existing platform roofing and supports at Derby Station.

The Special Register Information Service of the Board of Trade, Commercial Relations & Exports Department, reports that the United Kingdom Trade Commissioner at Delhi has notified a call for tenders issued by the Directorate General of Supplies & Disposals, Government of India, for 4,000 brake blocks, tender, for "MAWD" locomotives and WD wagons. Tenders should reach the Director General of Supplies & Disposals, Shahjahan Road, New Delhi, by 10 a.m. on June 2. A copy of the tender documents is available for inspection at the Board of Trade. A further copy is available on loan in order of application. Reference CRE/17000/53 should be quoted.

The Special Register Information Service of the Board of Trade, Commercial Relations & Exports Department, states that the United Kingdom Trade Commissioner at Johannesburg has notified a call for

Coronation Display at B.R. Paris Office



Window of the British Railways Office at 12, Boulevard de la Madeleine, featuring a special display

tenders issued by the South African Railways, Stores Department, for the supply of 100,000 steel sleepers, type E.22, to suit flat-bottom rails.

Tenders, which should reach the Chairman of the Tender Board, P.O. Box 7784, Johannesburg, by 9 a.m. on June 11 should be enclosed in a sealed envelope marked "Tender No. A.6421 For Steel Sleepers." A copy of the tender documents is available for inspection at the Board of Trade until May 23, and thereafter available on loan in order of application. Reference CRE/16616/53 should be quoted.

The United Kingdom Trade Commissioner at Delhi has notified the Commercial Relations & Exports Department of the Board of Trade of a call for tenders issued by the Directorate General of Supplies & Disposals, Government of India, for the supply of:—

(*a*) 128 (or 64 loco sets) axlebox keep and lubricator assemblies complete (driving).

384 (or 64 loco sets) axlebox keep and lubricator assemblies complete (leading, inter and trailing.

(*b*) 70 tubes (steel) superheater element shape No. 2 for "YG" locomotives.

70 tubes (steel) superheater element shape No. 3 for "YG" locomotives.

36 tubes superheater element shape No. 4 for "YG" locomotives.

Tenders should reach the Director General of Supplies & Disposals, Shahjahan Road, New Delhi, by 10 a.m. on (*a*) June 3, (*b*) June 5. A copy of the tender documents is available for inspection at the Board of Trade. A further copy is available on loan in order of application. Reference CRE/16655/53 should be quoted for (*a*) and CRE/16656/53 for (*b*).

The Board of Trade, Commercial Relations & Exports Department, has been notified by the United Kingdom Trade Commissioner at Delhi of a call for tenders issued by the Directorate General of Supplies & Disposals, Government of India, for the supply of:—

4,700 coupling yoke pin (m.g.), 6¼ in. by 1⅛ in.
400 coupling hook (m.g.).
600 coupling hook head (m.g.).
550 coupling drawbar (m.g.).
700 coupling screw.
700 coupling outside casing (m.g.).
1,400 buffer coupling pivot pin (m.g.).

Tenders should reach the Director General of Supplies & Disposals, Shahjahan Road, New Delhi, by 10 a.m. on June 3. A copy of the tender documents is available for inspection at the Board of Trade (Room 6176), until May 23, and thereafter on loan in order of application. Reference CRE/17637/53 should be quoted.

The Board of Trade, Commercial Relations & Exports Department, has been notified of a call for tenders by the Central Trust of China for the supply of two 25-ton diesel locomotives complete with recommended spare parts and repair and servicing tools. These locomotives are required to operate over the Ali Shan lines and must have satisfactory performance at altitudes of 3,500 m. Gauge of track is 762 mm. (30 in.); maximum gradient 1 in 16; maximum curvature 30 m.; loading gauge—overall height 365·76 cm.; overall width of body 228·60 cm. Loads to be hauled uphill at 12 to 14 km.p.h. are eight empty eight-wheel bogie timber wagons each of 3·8 *tonnes* and downhill at 14 km.p.h., controlled by brakes, the same eight wagons each laden with eight *tonnes* of logs. Hand brake and Westinghouse type ET-6 straight and automatic air brake to be fitted. Wheel arrangement to be either 0-4-0, 0-6-0 or 0-4-4-0 bogie, but manufacturer must guarantee that wheelbase will negotiate 30 m. curves.

A copy of the tender documents, including specification and loading gauge diagram, is available for inspection in Room 6176 at the Board of Trade until June 4. After that date the documents will be available on loan in order of written application. Reference CRE/17377/53 should be quoted.

Notes and News

Civil Engineer Required.—Applications are invited for the post of civil engineer—district, or assistant district engineer, required by a British railway company operating in Bolivia. See Official Notices on page 607.

Traffic Manager Required.—Applications are invited for the post of traffic manager required by an iron and engineering works in the North Midlands. Wide experience of traffic control, railway rates and charges essential. See Official Notices on page 607.

B.E.A.C. New London Air Terminal Opened.—On May 21 Mr. Alan Lennox-Boyd, Minister of Transport, officially opened the new London air terminal of British European Airways Corporation at the Festival of Britain site. The terminal was open to the public on May 19. It consists of the Festival Station Gate building with extensions.

Sir William Siemens Letters Presentation.—A set of three volumes containing originals and fascimiles of more than 250 letters addressed to Sir William Siemens during the last century was the subject of a presentation which took place on May 14 at the close of the annual general meeting of the Institution of Electrical Engineers. The presentation was made by Sir George H. Nelson, Chairman & Managing Director, the English Electric Co. Ltd., to Colonel B. H. Leeson, President of the Institution of Electrical Engineers. The three volumes include a short biography of Sir William Siemens written by Mr. W. H. Kennet, the well-known scientific writer.

Crown Agents for the Colonies.—Applications are invited for the post of assistant traffic superintendent required by the Nigerian Government Railway, for tour of 12 to 14 months with prospect of pensionable employment. See Official Notices on page 607.

Fourth Ship of New Clyde Fleet Launched.—At Ardrossan Dockyard on May 13 Mrs. Catherine R. Blee, wife of Mr. David Blee, Member, the Railway Executive, performed the launching ceremony of the m.v. *Maid of Cumbrae*, the fourth of the seven new ships being built for the Clyde Services of British Railways. Responding, at a luncheon after the launch, to the toast of "British Railways," Mr. David Blee said that development of this new fleet involved an expenditure of over £1 million, and had been promoted locally in Scotland by the officers of the Scottish Region, with the support of the Railway Executive and the British Transport Commission. As the full fleet of seven new vessels progressively comes into service, so they might hope that this great commercial enterprise would be proportionately rewarded. Mr. T. F. Cameron, Chief Regional Officer, Scottish Region, in thanking the Ardrossan Dockyard Limited, said that British Railways were indebted to the shipbuilders of the Clyde for their help in the difficult task of finding out the kind of ship which would be suitable and at the same time reduce the enormous loss which they at present had incurred. He hoped that with the four new passenger ships and the three general purpose vessels which were coming

Sir George H. Nelson, Chairman & Managing Director, the English Electric Co. Ltd., presenting the Sir William Siemens volume to Colonel B. H. Leeson, President of the Institution of Electrical Engineers

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

SALES and SERVICE ENGINEER required by old established firm manufacturing product extensively used by Railway Signal and Telecommunication Departments and Telephone Administrations throughout the world. Applicants should be about 35 years of age and in good health and should state:—Salary expected; whether married; languages spoken; details of education and experience. Headquarters will be within 50 miles of London, but man appointed would be expected to travel extensively throughout the British Isles and occasionally overseas. Applications will be treated in confidence and should be submitted not later than June 1, 1953.—Box 791, *Railway Gazette*, 33, Tothill Street, S.W.1.

CIVIL ENGINEER—District, or Assistant District Engineer, required by British Railway Company operating in Bolivia. Candidates must have passed Sections A and B or equivalent and had Railway experience. Salary according to grade, plus free quarters, allowances, passages, etc. Applications in writing to Box 6752, c/o CHARLES BARKER & SONS, LTD., 31, Budge Row, London, E.C.4.

THE PERUVIAN CORPORATION have the following vacancies on the railways in Peru:—Central Railway. LOCOMOTIVE ASSISTANT, preferably single and between 26/30. Qualifications: full apprenticeship with British Railways or locomotive builders, and experience in one or more of the following:—Railway Machine Tool Operation, Welding Boiler Work, Locomotive Running or Drawing Office. ACCOUNTANT (Traffic Auditor). About 30 years of age, preferably single with general auditing and railway accounting experience. Southern Railways. ASSISTANT CIVIL ENGINEER (Divisional) with practical experience on railway maintenance. Guaqui-La Paz Railway, Bolivia. TWO ASSISTANT ENGINEERS, one with Electrical Mechanical Apprenticeship including experience with diesel engines and the other with Apprenticeship Permanent Way Department of British railway and with Drawing Office experience. Good education activity and first class health essential, age 25/30, single. Northern Railways. DIESEL ENGINEER with practical experience on diesel locomotives and railcars and workshop management. A knowledge of the Spanish Language is preferable in all these appointments or willingness to learn within 6 months. Apply: SECRETARY, 144, Leadenhall Street, London, E.C.3.

N.E.R. HISTORY.—Twenty-Five Years of the North Eastern Railway, 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth. Cr. 8vo. 87 pages. 10s. *6d.—The Railway Gazette*, 33, Tothill Street, London, S.W.1.

CROWN AGENTS FOR THE COLONIES

ASSISTANT TRAFFIC SUPERINTENDENT required by Nigerian Government Railway, for tour of 12/24 months with prospect of pensionable employment. Salary etc., according to age and experience in scale £750 rising to £1,480 a year. Outfit allowance up to £60. Free passages for officer and wife and assistance towards cost of children's passages or their maintenance in this country. Liberal leave on full salary. Candidates must have thorough training in all branches of operating and commercial work, railway law and economics, with a good knowledge of accounts and be able to handle extensive correspondence and control staff. Apply in writing to the CROWN AGENTS, 4, Millbank, London, S.W.1, stating age, name in block letters, full qualifications and experience and quoting M3B/33566/RA. Applicants serving with British Railways would be eligible for secondment and should apply through their local officers.

TRAFFIC MANAGER required by large Iron and Engineering Works in North Midlands. Wide experience of traffic control, railway rates and charges, etc., essential. House available. Applications stating age, details of previous experience and salary required to Box 837, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25*s.* per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

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forward, the loss would be reduced, and at the same time a first class service would be given on the Clyde.

Punctuality at Liverpool Street.—Of 1,108 suburban trains using Liverpool Street Station during the morning and evening peaks during the week ended May 9, 1,024 were right time. Up electric trains in the morning peak achieved a right-time punctuality of 99·6 per cent, only one train being late out of a total of 263. This was an improvement on the performance for last year.

British Railways Coal, Iron and Steel Carryings.—The latest week's clearance of deep-mined and opencast coal by British Railways, up to 6 a.m. on May 18, totalled 3,342,240 tons. The weekend figure was 363,190 tons. Iron and steel carried from the principal steel works during the week ended May 9 amounted to 217,000 tons, and 337,900 tons of iron ore were also conveyed in the same period.

Threatened Strike on Sligo Leitrim & Northern Counties.—Strike notice has been served on the Sligo Leitrim & Northern Counties Railway on behalf of 50 workers, who are claiming parity with other rail employees of the company who work in Northern Ireland. Under present conditions Northern employees receive about £1 per week more than their colleagues in the Republic. The notice is due to expire on May 23, on the eve of Whitsun weekend, when traffic is expected to be heavy. A claim for pay increase has been lodged by the 80 employees on the Northern side, but they have decided not to take strike action.

Gloucester Railway Carriage & Wagon Co. Ltd. to Offer for Capital of Subsidiary.—Gloucester Railway Carriage & Wagon Co. Ltd. announces that, subject to Treasury consent, it is proposed to make an offer shortly for the outstanding 41 per cent share capital of Hatherley Works Limited, one of its three subsidiaries. Holders will be invited to sell their shares in exchange for shares of the Gloucester company on the basis of exchange of nine shares of 10s. each of the Gloucester company for ten shares of 5s. each of Hatherley Works. Completion will be conditional on the stockholders of the Gloucester company approving the necessary increase in the authorised capital of that company and on the acceptance of the offer by at least three-quarters in number of the shareholders of the Hatherley company holding in the aggregate not less than nine-tenths of the shares of that company not now owned by the Gloucester company. The issued capital of Hatherley Works Limited is £65,000.

London-Newcastle Air Service.—On May 15 Hunting Air Transport Limited inaugurated services with Dakota aircraft between Bovingdon Airport, Herts. (for London) and Newcastle-on-Tyne. There are two departures daily, at 8.15 a.m. and 7 p.m., from each airport. The flying time is 2 hr.

London on Wheels.—The first exhibition of historical relics arranged by the British Transport Commission is being held in the Shareholders' Meeting Room, at Euston Station, London, N.W.1, and was opened on Wednesday last by Lord Hurcomb, Chairman of the B.T.C., under the omnibus title of "London on Wheels." The exhibits cover public transport in the Metropolis by rail, road, and water during the nineteenth century, and include prints, models, documents and plans, tickets, and timetables. The exhibition will remain open from 10 a.m. to 7 p.m. on weekdays, and from 2 to 7 p.m. on Sundays, until August 29. The charges for admission are 1s. for adults and 6d. for children.

Permanent Way Institution Convention Dinner.—There was an attendance of over 300 at the Coronation Year Convention Dinner of the Permanent Way Institution in the City Hall, Cardiff, on May 16. There were 43 guests from Holland, who received an enthusiastic ovation from the gathering. Mr. M. G. R. Smith, Civil Engineer, Western Region, and President of the Institution, was in the chair. The toast of "The City of Cardiff" was proposed by Mr. Ivor Jones, Chairman, South Wales Section, Permanent Way Institution, and replied to by the Lord Mayor of Cardiff, Councillor W. H. J. Muston. Mr. A. E. H. Brown, Chief Docks Manager, South Wales Docks, proposed "The Permanent Way Institution," to which Mr. M. G. R. Smith replied. The toast of "The Guests" was proposed by Mr. J. Taylor Thompson, Civil Engineer, London Midland Region, a Past President of the Institution. Mr. E. Julian Pode, Managing Director, the Steel Co. of Wales Ltd., responded. Previous conventions of the Institution have been held in Cardiff in 1903, 1913, and 1930.

Regulation of Larne-Stranraer Travel.—Regulated travel to and from Ireland via Stranraer and Larne will be considerably extended this year because of the loss of the *Princess Victoria*. A statement from the London Midland Region announces that there will be 15 days in the summer on which steamer reservation tickets will be required from Stranraer and 16 days in the opposite direction.

Royal Journeys Exhibition.—The British Transport Commission announces that an exhibition entitled "Royal Journey" is to be opened next month at Battersea Wharf, near the Festival Gardens. This will include a famous locomotive which hauled many Royal trains at the end of the nineteenth century, a number of old Royal coaches, and other relics associated with Royal travel in the past.

Eastern Region Trains.—In the period May 21 to 26 the Eastern Region will run 293 additional main-line trains with a peak of 85 on May 22. The highest number to individual destinations from London will be 12 extras from Kings Cross to Leeds and Bradford on May 22. A number of cross-country services linking the more important provincial towns will be duplicated. Advertised restaurant and buffet car facilities will generally be maintained on the services on which they are normally provided. In addition, certain of the additional relief trains will also provide refreshment facilities. Extra services to Edinburgh and Aberdeen, conveying sleeping accommodation, will be run from Kings Cross on May 22.

Northern Roadways Anglo-Scottish Coach Services.—Northern Roadways Limited, of Glasgow, is being allowed to continue its coach services between London and Scotland. The Ministry of Transport has decided not to interfere with the licensing authorities' decision to grant the company

a licence to operate express coach services. The company operates about 100 coaches which provide four services a day each way on two routes.

Mount Lyell Mining & Railway Co. Ltd.—The Mount Lyell Mining & Railway Co. Ltd. announces from Melbourne that the directors have resolved to await figures for full year ending September 30 next before deciding on the payment of a dividend out of profit for the year.

British Railways and the Coronation.—On May 18 British Railways began the main work of decorating 145 stations for the Coronation, including the principal London termini and those at the ports; in some cases stations will be floodlit. A special effort is being made to complete before Coronation Day the painting of as many as possible of the 900 stations which are to be renovated this year. During the week preceding the Coronation, 62 special trains will bring to London nearly 30,000 Services personnel required for the Coronation duties. Three thousand police and thousands of schoolchildren will also be brought to London by train.

Middlesbrough Dock Improvement Scheme.—The Docks & Inland Waterways Executive, with the approval of the British Transport Commission, is to undertake an improvement scheme at Middlesbrough Dock at an estimated cost of £470,000. To meet the requirements of shipowners and traders, No. 10 Quay — hitherto used exclusively for shipping coal—is to be developed for general cargo working by the provision of two single-storey transit sheds, respectively 385 ft. and 350 ft. long; eight 6-ton and two 10-ton level-luffing electric cranes; and ample rail and road access. The scheme also provides for improved facilities, including a new road, at No. 2 Quay.

Aluminium Development Association.—At the recent general meeting in London of the Aluminium Development Association, the retiring President, Mr. H. E. Herrington, spoke of the continuing progress of the association. The report showed that 2,750 inquiries had been answered, 132,000 publications distributed, and over 400 film shows had been pursued in connection particularly with structural engineering, naval architecture, large riveted joints, welding, and finishing. Although 1952 had opened with supply difficulties, at the end of the year there was fabricating capacity available. More competition was likely in future, but the association would be regarded as a spearhead of the industry's competitive efforts. Mr. Herrington, who becomes the new Vice-President of the Association, is succeeded as President by Mr. R. D. Hamer, Vice-President and Director of Aluminium Laboratories Limited.

Forthcoming Meetings

May 27 (*Wed.*).—Railway Students' Association at the London School of Economics & Political Science, Houghton Street, Aldwych, W.C.2, at 6.15 p.m. Annual General Meeting.

May 29 (*Fri.*) to 31 (*Sun.*).—National Industrial Safety Conference at Scarborough.

May 30 (*Sat.*).—Permanent Way Institution, East Anglia Section, at 2 p.m. Visit to Whitemoor Marshalling Yard.

May 31 (*Sun.*).—British Railways, Southern Region, Lecture & Debating Society. Afternoon visit to the Romney, Hythe & Dymchurch Railway, organised by members of the Eastern Region of British Railways.

June 5 (*Fri.*).—The Railway Club, at 57, Fetter Lane, E.C.4, at 7 p.m. Paper on "The Travelling Post Office," by Mr. C. W. Ward.

June 6 (*Sat.*) to 14 (*Sun.*).—British Railways, Southern Region, Lecture & Debating Society. Continental Tour of the Western Pyrenees.

June 7 (*Sun.*).—Railway Correspondence & Travel Society. Second South Yorkshire Rail Tour, leaving Sheffield Midland at 12.40 p.m.

June 9 (*Tues.*).—Institution of Civil Engineers at Great George Street, Westminster, S.W.1, at 5.30 p.m. Annual General Meeting.

June 11 (*Thu.*).—Railway Students' Association. Evening visit to Feltham Marshalling Yard, Southern Region.

June 13 (*Sat.*).—Railway Students' Association. Visit to Guinness' Park Royal Brewery. Party will meet at 9.30 a.m.

June 13 (*Sat.*) to 14 (*Sun.*).—Permanent Way Institution, visit to Dawlish Warren, Western Region.

June 15 (*Mon.*) to 17 (*Wed.*).—British Iron & Steel Research Association, at Ashorne Hill, Leamington Spa. Conference on Heat Treatment Practice.

June 18 (*Thu.*).—Institution of Civil Engineers, at Great George Street, Westminster, S.W.1, from 7.45 to 12 p.m. Conversazione.

June 20 (*Sat.*).—British Railways, Southern Region, Lecture & Debating Society. Afternoon visit to London Transport Garage at Reigate.

Railway Stock Market

Mainly because of international uncertainties, stock markets have reflected caution by buyers, and prices in most sections again lost ground. British Funds were an exception because in active dealings they again moved in favour of holders and attracted the bulk of investment business now it is felt that the industrial outlook is difficult to assess. The City is continuing to assume that in due course a reduction in the bank rate to 3½ per cent or perhaps 3 per cent will be made, and this would of course mean a rise in prices of all classes of fixed-interest securities and a gain of several points above current levels for 3½ per cent War Loan and irredeemable and long-dated stocks generally. Reduction in the rate of interest from 6 per cent to 5½ per cent on new long term loans by the Agricultural Mortgage Corporation—which is the first move away from dearer money seen since Mr. Butler first raised the bank rate at the end of 1951—has been regarded in the City as an important pointer, though the Agricultural Mortgage Corporation is not of course controlled by the Treasury. When Mr. Butler became Chancellor he was faced with the problem of curbing inflation and this was achieved by dearer money, but now the City believes that cheaper money, which would mean new plant and equipment could be financed more cheaply, is becoming of major importance to industry.

Foreign Rails have not received much attention this week. White Pass & Yukon no par value shares, after declining further, attracted buyers and rallied, but later receded again to $28¼, while the convertible debentures were £100. It is apparent that the dividend stage is a long way ahead. Although the current level of the shares may be fully justified if a long view is taken, it must be regarded as discounting future possibilities a long way ahead, unless there were a take-over offer made for the shares on the lines rumoured in the market for some time, though this rumour now appears to be entirely without foundation.

United of Havana stocks received more attention on the view that when sugar is no longer rationed Cuba will be more inclined to discuss a reasonable method of paying for the railway from the proceeds of her sugar sales over a period of years. United of Havana 4 per cent "A" stock was 64, the "B" stock 55½, while the 5 per cent income stock rallied to 24¼ and the consolidated stock was 4¼. Elsewhere, Antofagasta preference has been steadier at 44 with the ordinary stock at 9. San Paulo units were 6s. 1½d., Nitrate Rails shares eased to 21s. 3d., and in other directions, Mexican Central "A" debentures receded a little to 71.

Canadian Pacifics were steady at $50, while the 4 per cent preference stock was £64¼ and the 4 per cent debentures £83. Manila "A" debentures have been quiet at 81 at the time of writing and the preference shares 8s. 6d. French railway sterling bonds lost ground; Midi 4 per cent were 78¾. In other directions, Guayaquil & Quito 5 per cent bonds were less active around 49. Chilian Northern 5 per cent debentures have been dealt in up to 27¼, and Costa Rica 6½ per cent second debentures at 60. Taltal shares showed business up to 15s. 9d. There were again dealings in old Russian railway bonds. Black Sea-Kuban marked 15s. and Armavir-Touapse 12s. 6d. In other directions, Algoma Central & Hudson's Bay 5 per cent debentures were dealt in at $240 and Ontario & Quebec 5 per cent debentures at £98½. Among home stocks, Fishguard-Rosslare 3½ per cent preference marked 72.

Road transport shares again displayed firmness with Southdown at 32s. 6d., West Riding 34s. 6d. and Lancashire Transport 47s. 6d. B.E.T. deferred stock at £515 reflected a little profit-taking following their recent rise.

Engineering and kindred shares have again receded in price though little selling was reported. Sentiment has been affected by the higher wages claims and also by the prospect that the big offer of shares in iron and steel companies, which are to return to private ownership following de-nationalisation, will mean that buying interest will be diverted from existing engineering shares. It is being assumed that if the share offers in the iron and steel companies, such as Dorman Long and United Steel, are to be a success they will have to be issued on a basis showing a yield of 7 per cent or 8 per cent. At the time of writing, John Brown have declined to 36s. 6d., but Cammell Laird 5s. shares became firmer at 12s. 3d. Vickers were steady at 46s. 1½d. Guest Keen declined to 45s. 6d.

Among shares of locomotive builders and engineers, Beyer Peacock were 32s. 6d., Hurst Nelson 41s., North British Locomotive 13s. 1½d., Vulcan Foundry 20s., Gloucester Wagon 10s. shares 10s. 6d., and Wagon Repairs 5s. shares 11s. 9d. Charles Roberts 5s. shares were 14s. 4½d., and Central Wagon changed hands around 66s. 6d.